Appendix I2
Jurisdictional Delineation

Revised Final Jurisdictional Wetland Delineation Report

Redlands Passenger Rail Project

Redlands, San Bernardino County, California

July 2013

Prepared for:

San Bernardino Associated Governments
1170 W. 3rd Street, 2nd Floor
San Bernardino, California 92410

Prepared by:

HDR Engineering, Inc.
8690 Balboa Avenue, Suite 200
San Diego, California 92123

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1.0 INTRODUCTION AND PROJECT DESCRIPTION

This report summarizes preliminary findings of the U.S. Army Corps of Engineers (USACE) and California Department of Fish and Wildlife (CDFW) jurisdiction for the Redlands Passenger Rail Project (RPRP or project) located in Redlands, San Bernardino County, California. [1] In 2012, HDR biologists examined the project site and a surrounding buffer area to determine the limits of: (1) USACE jurisdiction pursuant to Section 404 of the Clean Water Act (CWA); and (2) CDFW jurisdiction pursuant to Section 1600 of the California Fish and Game Code. Appendix A, Figure 1 depicts the project location. Appendix A, Figure 2 depicts the project study area overlaid on USGS San Bernardino South and Redlands quadrangles. Appendix A, Figure 3 depicts soils within the project study area. Appendix A - Figures 4a-4t, depict the vegetation communities and cover types that occur within the project study area. Appendix A - Figures 5a-5t depict the location and extent of Waters of the U.S. and Waters of the State.

Should project construction result in measurable impacts to USACE or CDFW jurisdiction, one or more of the following permitting documents may be required, depending on jurisdictional determinations (JD) made by the regulatory authorities identified by this study:

- A USACE Individual Permit pursuant to Section 404 of the federal CWA (1990, as amended), and/or qualification under a Nationwide Permit pursuant to Section 404 of the CWA;
- CWA Section 401 Certification from the state Regional Water Quality Control Board (RWQCB); and
- California Fish and Game Code Section 1602 Streambed alteration Agreement (CDFW).

1.1 PROJECT APPLICANT

The San Bernardino Associated Governments (SANBAG) is proposing the Project as further described under Section 1.2 to facilitate passenger rail service along the Redlands Corridor. SANBAG would be the project applicant for any regulatory permit approvals that may be required for the Project. The primary contact person at SANBAG for the Project is provided below.

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1.2 PROJECT DESCRIPTION

The Project would involve the implementation rail improvements along the Redlands Corridor to facilitate commuter rail service between the City of San Bernardino and the University of Redlands in the City of Redlands. Appendix A, Figure 1 depicts the project location. The five station stops proposed in conjunction with the RPRP would be located at E Street and Tippecanoe Avenue within the City of San Bernardino and New York Street, Orange Street, and University Street within the City of Redlands.

[1] This report presents our best effort at estimating the subject jurisdictional boundaries using the most up-to-date regulations and written policy and guidance from the regulatory agencies. Only the regulatory agencies can make a final determination of jurisdictional boundaries. If a final jurisdictional determination is required, HDR can assist in getting written confirmation of jurisdictional boundaries from the agencies.

Maintenance activities would be performed at a new layover facility proposed west of California Street and south of I-10 in the City of Redlands, just north of the Loma Linda city limits.

Construction of the project would occur within an existing railroad right-of-way (ROW) owned by the San Bernardino Associated Governments (SANBAG). SANBAG's ROW averages 50 to 100 feet in width with the exception of portions of downtown Redlands where the ROW measures less than 40 feet. Additional details regarding each of the components comprising the Project and associated operations are described under the following subheadings.

Track Improvements

The Project would include the construction of track improvements to facilitate train movements along a single track through the rail corridor with an approximately 10,000-foot-long section of passing track or siding, from just west of Richardson Street to just east of California Street (Mile Post [MP] 5.5 to MP 7.4). The proposed track ballast and sub-grade along the 9-mile project corridor would be constructed to 50 feet in width, sufficient to support a parallel maintenance road. In downtown Redlands, this width would be reduced to less than 40 feet in recognition of the constrained ROW. This would require demolition and replacement of the existing track. These improvements would generally adhere to standards established by the BNSF and Southern California Regional Railroad Authority (SCRRA) for the rail, rail ties, ballast and subballast materials, grade crossing panels, placement of drainage structures and retaining walls, and horizontal and vertical clearances. The rail improvements would also include the construction of a new train signaling and communications system.

Structural Crossings and Bridges

The Project would require the replacement or retrofitting of up to six structural crossings to facilitate the loading requirements of the passenger trains and track foundation. Five of the six structural crossings consist of existing bridge structures at Warm Creek (Historic), Twin Creek, Santa Ana River (Upper), the Mission Zanja Flood Control Channel, and Mill Creek Zanja.

Roadway Grade Crossings

The Study Area traverses 32 existing roadway grade crossings including two I-10 underpasses. Roadways grade crossing not subject to closure would be re-designed in accordance with the latest Grade Crossing Design guidelines that require in certain cases raised medians, widened sidewalks, traffic striping, flashing lights, pedestrian gate arms where requested by the California Public Utilities Commission (CPUC), and swing gates.

Proposed Rail Platforms

There are currently five (5) station stops proposed for the Project with new rail platforms proposed at four (4) locations. Two (2) station stops (E Street and Tippecanoe Avenue) would be located in the City of San Bernardino, while the other three (3) (New York Street, Downtown Redlands, and the University of Redlands) would be located in the City of Redlands. Shade structures (or canopies) would be provided to individually distinguish each rail platform and to compliment the contextual surroundings. Landscape planters would be used to separate platforms from open areas, adjacent uses, and walkways.

Train Layover Facility

The Project would require the development of a new Train Layover Facility to include sufficient storage tracks for maintenance activities and operational activities including offices, training rooms, and a crew break room. The Train Layover Facility would be constructed on a long narrow site immediately south of I-10 and west of California Street and would contain up to seven spur tracks.

Utility Replacement and Relocation

The Project would likely necessitate the relocation of existing subsurface and overhead crossing utilities (i.e., water, sewer, storm drain, power, gas, fiber optic, and telephone lines) in accordance with applicable utility accommodation design criteria and engineering standards. The exact method of improvement, if required, would be determined in coordination with the affected utility provider in conjunction with the Project's final design.

Drainage

Several drainage facility improvements would be necessary to accommodate the track improvements, bridge replacements, platform improvements, and layover facility. It is anticipated that a majority of the storm drain facilities would be protected in place and would not need to be lowered to meet minimum depth requirements. However, it is likely that the majority of the storm drain casings within the rail ROW would need to be extended to span the entire width of the rail ROW. These improvements would be coordinated with the cities of San Bernardino and Redlands along with San Bernardino County Flood Control District (SBCFCD). In addition, longitudinal storm drain lines located within the rail corridor would need to be relocated further from the proposed track centerlines to comply with BNSF engineering standards.

Mission Zanja Channel Improvements. Mission Zanja Flood Control Channel runs parallel to the rail line from the SAR to approximately 900 feet west of California Street for a distance of approximately 2.6 miles where it diverges from the Survey Area to the south. At approximately milepost 9.4 (Bridge 9.4), the creek rejoins the railroad further east, as Mill Creek Zanja , where it passes under the railroad just west of the I-10 overcrossing.

Mission Zanja Channel is characterized as an improved, trapezoidal earthen channel with some segments including wire revetment (USACE, 1994). To ensure the structural integrity of the track improvements along sections of Mission Zanja Channel, the Project may include bank stabilization improvements (e.g. armoring, slope keying, etc.) to the northern bank of the Mission Zanja Channel, from MP 3.5 to just east of MP 6, to ensure that the bank is able to support the additional loading requirements and withstand scour during high flow events. At this time, SANBAG is considering the use of an articulated concrete block (ACB) to support the armoring of the northern bank, which would allow for the growth of limited vegetation. This improvement would be coordinated and constructed with the SBCFCD, which owns and maintains the Mission Zanja Channel.

Description of Passenger Rail Operations

The Project would incorporate the use of previously owned rail commuter rail vehicles and would start operations in early 2018. Local service would operate between the E Street and University of Redlands Rail Platforms with stops at each of the station stops along the route. Trains would operate every 30 minutes in the peak periods and every hour in the off-peak period. This would translate to 25 average

daily round trips along the alignment during weekdays. The Project does not propose any corresponding increase is freight service.

Maintenance

Maintenance of the railroad ROW is currently the responsibility of BNSF, which is the current operator of the rail line. This includes routine maintenance of the track and track ties, grade crossings, and communication system. Vegetation management and weed abatement would also be required along the ROW. Each platform would also require routine landscaping and facility maintenance (e.g. replacement of lighting fixtures). Typical railroad maintenance and inspections would be conducted by a contractor hired by SANBAG throughout the operational phase of the Project in accordance with SCRRA/Metrolink and BNSF standard practices.

Construction

Construction of the proposed Project would begin in 2015 and take up to 36 months to complete. Construction would proceed generally from the west of E Street to the SAR and similarly from the SAR east to Cook Street. Construction scheduling and phasing would ultimately be at the discretion of SANBAG's contractor. In total, the anticipated construction disturbance area is estimated at 140.59 acres; however, actual physical disturbance would generally be limited to 10 acres or less on any given day. Of this total disturbance area, approximately 34.35 acres would be limited to temporary, construction-related impacts associated with the bridge structures and staging areas, while approximately 106.24 acres would be permanently impacted by the placement of one or more Project facilities.

A description of anticipated construction activities over the course of Project construction is provided as follows:

- Construction easement acquisition, clearing and grubbing, and removal of existing track;
- Relocate, extend, or encase utilities, as appropriate, to remove conflicts;
- Construct embankments, culvert extensions, an retaining walls for the proposed rail corridor, as necessary;
- Re-grade, install drainage, and construct bridge crossings, including as appropriate, new, standard height parapets on both sides of each bridge, construct in-fill walls, plug deck drains, construct new spread footings at each pile, and seal parapet joints;
- Construct new rail platforms at proposed rail platform locations and layover facility; and
- Construct new continuous welded rail track, roadway grade crossings, and install pedestrian access improvements and landscaping, where appropriate.

These activities would likely overlap at times. Staging areas for construction equipment and materials would be located primarily within the SANBAG ROW to the extent feasible. Other staging areas would be acquired, as necessary, by the construction contractor and, to the extent feasible, would include vacated roadway ROW. The location of the staging areas would depend on the rail segment, bridge, and platform location being constructed. In addition, a part of the proposed layover facility would be used as a centralized construction staging area for heavy equipment due to its centralized location along the rail corridor.

1.2.1 Alternatives and Design Options

In conjunction with the environmental review for RPRP, SANBAG is considering several alternatives and design options for the project. The alternatives and design options evaluated in this BTR are identified and summarized below:

- *Reduced Project Footprint Alternative*. This alternative would involve a reduced construction area (130.6 acres) to minimize impacts to sensitive habitats. These reductions in the construction area occur at Twin Creek, the SAR, and along the Mission Zanja Flood Control Channel. Additionally, this alternative would include an alternate bridge design for Bridge 3.4 to further minimize permanent impacts to the SAR as a result of the placement of the new bridge pier foundations. All other aspects of this alternative would be similar to the Preferred Project.
- *Design Option 1 (Layover at Waterman Avenue)*. Design Option 1 would entail the placement of the proposed layover facility at an alternative location, just east of Waterman Avenue and north of the railroad corridor. The total construction area under the design option would slightly increase to 143.6 acres. All other aspects of this design option would be similar to the Preferred Project.
- *Design Options 2 (Use of Existing Layover Facilities)*. Design Option 2 would entail the use of existing layover facilities to the west of the Survey Area in place of constructing a new layover facility. The total construction area under the design option would decrease to 130.0 acres. All other aspects of this design option would be similar to the Preferred Project.
- *Design Option 3 (Waterman Station)*. Design Option 3 would entail the construction of a new station platform just east of Waterman Avenue and south of the railroad corridor in place of the Tippecanoe Avenue platform. The total construction area under the design option would slightly increase to 139.5 acres. All other aspects of this design option would be similar to the Preferred Project.

Additionally, a No Build Alternative is under consideration as part of the environmental review. Under this alternative, SANBAG would not construction the project, but would still be required to perform regularly scheduled maintenance of the existing track and corresponding improvements at grade crossings and bridges to facilitate continued freight service per SANBAG's obligations with BNSF. As a result, the some renovation and rehabilitation of the railroad corridor would still be required. However, these improvements would not be performed immediately, but rather incrementally over the next 10 years.

1.2.2 Definitions

The following definitions are used to describe the location of the various survey activities conducted during on-site fieldwork:

- ***Project area*** is defined as the limits of impacts associated with full build-out of the proposed project. The proposed project footprint is approximately 143 acres.
- ***Survey area*** is defined as the area within 200 feet on either side of the centerline of the proposed track alignment that was mapped and evaluated for potential direct and indirect impacts to biological resources. In limited areas, the survey area extends beyond the 200-foot offset to cover adjacent project facilities or potential infrastructure improvements. The survey area for the project is approximately 534 acres.

1.3 PROJECT LOCATION

The project is located within the limits of the Cities of San Bernardino and Redlands within the County of San Bernardino, California (Figure 1). The Survey area includes the easternmost nine miles of the 10-mile long Redlands Subdivision, which is now under SANBAG ownership. The Survey area starts just west of Mile Post (MP) 1, east of E Street within the City of San Bernardino and ends at MP 10.1 at the University of Redlands. The western endpoint of the Survey area roughly corresponds with 472625.405003 meters (m) East and 3773265.404 m North (WGS 84 UTM 11N). The eastern end of the Survey area corresponds with 485190.263559 m East and 3768624.11534 m North (WGS 84 UTM 11N).

Five major water crossings occur along within the Survey area. The western-most water crossing occurs at Warm Creek (Historic) at approximately MP 1.1. Further east, the railroad corridor crosses Twin Creek at approximately MP 2.2. At MP 3.4, the railroad corridor crosses the Santa Ana River. East of the Santa Ana River, the Survey area parallels the Mission Zanja Flood Control Channel for approximately 2.6 miles (MP 3.4 to MP 6.0). At MP 5.78, the Bryn Mawr Avenue crosses the Mission Zanja Flood Control Channel and intersections with the railroad corridor. Further east, the railroad corridor crosses the Mill Creek Zanja at MP 9.4.

1.4 SOILS

The Survey area is characterized as an alluvium-filled valley that formed over crystalline bedrock. The resulting surface generally ranges from 1,078 feet mean sea level (msl) in downtown San Bernardino to 1,474 feet msl in downtown Redlands. Soils within the Survey area boundary were mapped using the Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2003). The proposed project crosses eight different soil types (Appendix A, Figure 3), including:

- ***Grangeville Fine Sandy Loam (Gr)*** – This nearly level soil occurs on alluvial fans and alluvial plains and is used for pasture, truck crops, tomatoes, and flowers. It is a poorly drained, very deep fine sandy loam derived from granitic alluvium. The available water holding capacity is 6 to 8.5 inches. Runoff is very slow, and the erosion hazard is slight. The elevation ranges from 50 to 200 feet.
- ***Tujunga Gravelly Loamy Sand (TvC), 0-9 percent slopes*** – This soil occurs on alluvial fans and flood plains and is used mainly for grazing. Tujunga series consists of very deep, somewhat excessively drained soils formed in alluvium weathered mostly from granitic sources. The soils formed in sandy alluvium derived mostly from granitic sources. Runoff is very low or negligible and permeability is rapid. The elevation ranges from 5 to 4,300 feet.
- ***Hanford Coarse Sandy Loam (HaC), 2-9 percent slopes*** – This soil occurs on stream bottoms, floodplains and alluvial fans and is used for growing a wide range of fruits, vegetables, and general farm crops. Hanford series consists of very deep, well drained soils that formed in moderately coarse textured alluvium dominantly from granite. Runoff is well drained or low and permeability is moderately rapid. The elevation ranges from 150 to 3,500 feet.
- ***Psamments and Fluvents, Frequently Flooded (Ps)*** – Psamment soils are sandy in all layers and are among the most productive rangeland soils. Psamments are used mostly as rangeland, pasture, or wildlife habitat. Fluvents are more the more or less freely drained Entisols that have formed in recent water-deposited sediments on flood plains, fans, and deltas along rivers and small streams. Fluvents are used as rangeland, forest, pasture, or wildlife habitat and sometimes used as cropland. Most fluvents are frequently flooded with normal stratification of materials unless they are protected by dams or levees.

- ***Tujunga Loamy Sand (TvB), 0-5 percent slope –*** This soil occurs in somewhat excessively drained soils formed in alluvium and is used for growing citrus, grapes and other fruits but mainly used for grazing. Tujunga series consists of mostly weathered granitic sources. Runoff is very low to negligible with rapid permeability. The elevation ranges from 5-4,300 feet.
- ***Grangeville Fine Sandy Loam, Saline-Alkali (Gs) –*** This nearly level soil occurs on alluvial fans and alluvial plains and is used for pasture, truck crops, tomatoes, and flowers. It is a poorly drained, very deep fine sandy loam derived from granitic alluvium. The available water holding capacity is 6 to 8.5 inches. Formerly, most areas of Grangeville soils were occasionally flooded. Runoff is negligible, with moderate permeability in saline-sodic phases. The elevation ranges from 50 to 200 feet.
- ***Hanford Sandy Loam (HbA), 0-2 percent slopes –*** This soil occurs on stream bottoms, floodplains and alluvial fans and is used mostly for growing a wide range of fruits, vegetables, and general farm crops. Hanford series consists of mostly granite and other quartz bearing rocks. Runoff is well drained, negligible to low runoff, and with moderately rapid permeability. The elevation ranges from 150-3,500 feet.
- ***Ramona Sandy Loam (RmC), 2-9 percent slopes –*** This soil occurs on terraces and fans and used mostly for production of grain, irrigated citrus and deciduous fruits. Ramona series consists of mostly granitic and related rock sources. Runoff is slow to rapid and permeability is moderately slow. The elevation ranges from 250-3,500 feet.

1.5 HYDROLOGY

The Study Area is located within the Santa Ana River Watershed[2], which is approximately 2,800 square miles in area, originates at San Gorgonio Peak in San Bernardino County and drains southwesterly through Riverside and Orange Counties prior to emptying into the Pacific Ocean at Newport Beach. The Study Area is located with the Upper Santa Ana River Watershed, which is hydraulically disconnected from the lower watershed by San Prado Dam. The Study Area corresponds with the Santa Ana River Wash (HUC 18070203507), Mission Zanja (HUC 180702030506), and the Warm Creek (HUC 180702030508) sub-watershed units.

A total of five major offsite drainage features either crosses or is located longitudinally to the rail corridor. The crossings from west to east are known as Warm Creek (Historic) [Bridge 1.1], Twin Creek [Bridge 2.2], the SAR [Bridge 3.4], Bryn Mawr Avenue [Bridge 5.78], and Mill Creek Zanja [Bridge 9.4]. Bridges 5.78 and 9.4 cross the Mission Zanja Flood Control Channel (Mission Zanja Channel), which is a major drainage channel located adjacent and to the south of the eastern segment of the rail corridor.

1.6 VEGETATION COMMUNITIES

Vegetation types or plant communities are assemblages of plant species that usually coexist in the same area. The classification of vegetation communities is based upon the life form of the dominant species within that community and the associated flora. Vegetation was classified using the R.F. Holland system of natural communities as described in Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986). Nomenclature follows Hickman (1993) and Roberts, et al. (2004). The survey area supports 14 distinct vegetation communities (Appendix A - Figures 4a-4t; Table 1); however, the predominant land cover was identified as being urban/developed. The majority of the survey area is

[2] Note the SAR Watershed is located within the South Coast Hydrologic Region and corresponds to Hydrologic Unit Code (HUC) 18070203 accordingly to the U.S. Geological Survey.

made up of paved roadways, man-made structures, adjacent lands that are un-vegetated, and landscaped parcels.

Disturbed Habitat (Holland Code 11300)

Disturbed habitat (DH) is primarily used to identify areas of severe impacts to natural communities to the extent where it is no longer sustaining or functioning naturally. These areas have been previously physically disturbed, but continue to retain a soil substrate. Disturbed areas consist of predominantly non-native weedy and ruderal exotic species. This is not a natural community and generally does not provide habitat for wildlife or sensitive species. Examples of disturbed habitat include areas that have been graded, cleared areas for fuel management, staging areas, off-road vehicle trails, and abandoned home sites.

Disturbed habitat in the survey corridor consists of abandoned staging areas, home sites, and parking areas, unpaved roads, and areas that have been graded, repeatedly cleared, and/or experienced repeated use that prevents natural revegetation (Appendix A, Figure 4a-4tAppendix B, Photograph 1). Characteristic species include invasive, non-native forbes, such as, prickly Russian-thistle/tumbleweed (*Salsola tragus*), London rocket (*Sisymbrium irio*), fennel (*Foeniculum vulgare*). In addition a limited amount of annual grasses typical of non-native grassland (42200) occur but do not dominate DH.

Table 1. Existing Vegetation within the Project Survey Area

Vegetation Communities	Survey Area Acreage
Disturbed Habitat	24.54
Disturbed Wetland	0.02
Eucalyptus Woodland	2.78
Flat-top Buckwheat Scrub (disturbed)	0.91
Mulefat Scrub	0.04
Non-Jurisdictional Ditch	1.31
Non-Native Grassland	61.90
Non-Vegetated Channel	29.22
Oak Woodland	9.62
Orchard and Vineyards	5.28
Southern Cottonwood Willow Riparian Forest	8.27
Southern Willow Scrub	0.64
Tamarisk Scrub	0.47
Urban/Developed	388.88
Total	**533.88**

Disturbed Wetland (Holland Code 11200)

Disturbed Wetland (DW) is generally associated with areas of wetlands that have been disturbed in the past by clearing, grubbing, or mowing. The vegetation community has indicators of wetland species that

have been disturbed and non-native species such as castor bean (*Ricinus communis*), giant reed grass (*Arundo donax*), pampas grass (*Cortaderia selloana*), and other invasive species.

Within the survey area, a small area of DW occurs along the northern portion of the streambed in Twin Creek just west of the existing railroad bridge. Vegetation is sparse and consists of young arroyo willows (*Salix lasiolepis*), mulefat (*Baccharis salicifolia*), Typha (*Typha* sp.), and water speedwell (*Veronica anagallis-aquatica*). Within the DW a significant amount of trash and debris has accumulated such as mattresses, clothing, and shopping carts (Appendix A, Figure 4d; Appendix B, Photographs 2 and 3). There is evidence of vegetation maintenance (i.e., mowing) within the streambed. The DW does not connect upstream or downstream to wetland habitats.

Eucalyptus Woodland (Holland Code 11100)

Eucalyptus woodland (EW) is characterized by landscaped areas around homes or roadways. The primary indicator in EW is eucalyptus (*Eucalyptus* spp.), which is a non-native tree species from Australia. The understory is sparse and mostly dominated by leaf litter and weedy species including brome grasses.

Within the survey area, EW occurs adjacent to the Santa Ana River with individuals and smaller stands of Eucalyptus occurring throughout the project alignment (Appendix A, Figures 4a-4t; Appendix B, Photograph 4).

Flat-top Buckwheat Scrub (Holland Code 37K00)

Flat-top buckwheat scrub (FBS) consists of a monoculture of successional vegetation that formally supported coastal sage scrub and chaparral in areas that experience continued disturbances. In the survey corridor this community is disturbed, however, it is dominated by flat-top buckwheat (*Eriogonum fasciculatum*) and Wright's buckwheat (*Eriogonum wrightii)*, with the presence of other species. Other species that were present include annual brome grasses, fescue (*Vulpia* spp.), filaree (*Erodium* spp.), deerweed (*Lotus scoparius*), white sage (*Salvia apiana*), and ranchers fiddleneck (*Amsinckia menziesii* var. *intermedia*).

Within the survey area, FBS occurs within a vacant lot located north of the railroad tracks adjacent to Warm Creek and east of D Street (Appendix A, Figures 4a-4t). This habitat is disturbed due to frequent mowing.

Mule fat Scrub (Holland Code 63310)

Mule fat scrub (MFS) is generally characterized by tall, herbaceous riparian scrub dominated by mule fat. This vegetation community is frequently flooded an absence of floods in this community would likely succeed to cottonwood- or sycamore-dominated riparian forest or woodlands. Within the survey area this habitat occurs primarily within the Santa Ana River (Appendix A, Figures 4a-4t).

Non-native Grassland (Holland Code 42200)

Non-native grasslands (NNG) are often associated with numerous species of wildflowers and a dense to sparse cover of annual grasses. Characteristic plant species of NNG include oat (*Avena* sp.), rip gut brome (*Bromus diandrus*), soft brome (*Bromus hordeaceus*), foxtail brome *(Bromus madritensis* ssp. *rubens),* four-spot clarkia *(Clarkia purpurea),* sierra shooting star (*Dodecatheon clevelandii*), and California melica (*Melica californica*).

NNG within the survey area is often disturbed and appears to have been previously irrigated and/or cultivated for agricultural purposes. Characteristics that comprise this attribute include the occurrence of previously open space between rows and these areas appear to be currently maintained (Appendix A, Figures 4a-4t).

Proposed Non-jurisdictional Ditch (No Holland Code)

Several non-jurisdictional ditches occur within the survey area. These ditches occur entirely within upland areas and are generally associated with the railroad ROW. These features are typically unvegetated, or vegetated with weedy ruderal species, and do not provide significant wildlife habitat. These features serve to drain road runoff from the ROW and are often connected through a series of culverts running parallel with the ROW (Appendix A, Figures 4a-4t).

Non-Vegetated Channel (Holland Code 13200)

Non-Vegetated Channel (NVC) consists primarily of engineered/leveed channels maintained by the San Bernardino Flood Control District or local municipality. The channels are either concrete-lined or consist of a fine to coarse sandy or sandy cobbly substrate and are sparsely vegetated or unvegetated. Leveed banks consist of either concrete, concrete-covered cobble, or rock rip rap. Within the survey area, FCC occurs primarily in Twin Creek, Warm Creek, the Santa Ana River, Zanja/Mission channel (Appendix A, Figures 4a-4t; Appendix B, Photographs 3 and 5).

Oak Woodland (Holland Code 71100)

Oak woodland (OW) consists primarily of monotypic stands or various species of oak (*Quercus* sp.) with a poorly developed shrub layer, and well developed herbaceous layer generally dominated by grasses (*Bromes* spp.).

In the survey area this vegetation community consists of uniformly distributed scrub oak species with an occasional live oak (*Quercus* spp.) and a disturbed understory made up of non-native grasses that appear to be maintained (Appendix A, Figures 4a-4t). The area provides little habitat value due to the amount of disturbance and the surrounding land uses.

Orchard and Vineyards (Holland Code 18100)

Orchard and Vineyards (OV) occurs as an active orange grove located north of the ROW between California and Nevada Streets (Appendix A, Figures 4a-4t).

Southern Cottonwood Willow Riparian Forest (Holland Code 61330)

Tall, open, broadleafed winter-deciduous riparian forests dominated by Fremont cottonwood (*Populus fremontii)* and several willow species (*Salix* spp). This habitat occurs in sub-irrigated and frequently overflowed lands along rivers and streams. The dominant species require moist, bare mineral soil for germination and establishment. The understory is generally vegetated by herbaceous and viney species such as sedges (*Carex* sp.), grape (*Vitis* sp.), and introduced wetland species.

Within the survey area, Southern cottonwood willow riparian forest (SCWRF) occurs primarily within the western portion of Mission Zanja Channel and within the Santa Ana River (Appendix A, Figures 4a-4t).

Southern Willow Scrub (Holland Code 63320)

Southern willow scrub (SWS) is usually made up of a dense thicket of various willow species (*Salix* spp.). This habitat occurs in loose, sandy alluvium near stream channels and is frequently flooded. The habitat is limited by the dense thicket of willows and frequent flooding which impacts the development of an understory.

Within the survey area, SWS occurs as small patches within the Santa Ana River and Twin Creek (Appendix A, Figures 4a-4t; Appendix B, Photographs 6-8).

Tamarisk Scrub (Holland Code 63810)

Tamarisk scrub (TS) is made up of almost a monoculture of any of several tamarisk (*Tamarix* spp.) species. This vegetation community is often associated with major disturbances in areas where native vegetation is being supplemented by tamarisk.

Within the survey area Tamarisk Scrub occurs in primarily within the Santa Ana River and the Zanja/Mission Channel (Appendix A, Figures 4h).

Urban/Developed (Holland Code 12000)

Urban/Developed (UD) land is comprised of areas of intensive use with much of the land constructed upon or otherwise physically altered to an extent that native vegetation is no longer supported. Developed land is highly modified and characterized by permanent or semi-permanent structures, pavement, unvegetated areas and landscaped areas that require irrigation.

Within the survey corridor, developed areas are comprised of paved roadways, man-made structures, adjacent lands that are unvegetated, or landscapes with a variety of ornamental (typically non-native/ exotic) plants (Appendix A, Figures 4a-4t; Appendix B, Photographs 9 and 10).

2.0 METHODS

Jurisdictional delineation surveys were conducted for the proposed project in 2012. The survey area was delineated by HDR Biologists Sean Harris and Allegra Simmons on February 7-8, and 22-23, 2012. As previously described, the survey area extends 200 feet from the project centerline to capture jurisdictional features within and adjacent to the proposed project footprint. HDR biologists examined the project area to determine the limits of: (1) USACE jurisdiction pursuant to Section 404 of the Clean Water Act (CWA); and (2) California Department of Fish and Wildlife (CDFW) jurisdiction pursuant to Section 1600-1616 of the California Fish and Game Code. The site was evaluated in accordance with the 1987 USACE Wetland Delineation Manual (Environmental Laboratory, 1987), the 1992 Classification of Wetlands and Deep Water Habitats in the United States (Cowardin et al., 1992), the 2008 Interim Regional Supplement to the USACE Wetland Delineation Manual: Arid West Supplement (Arid West Supplement) (USACE, 2008a), the Regulatory Program CWA Guidance to Implement the U.S. Supreme Court Decision for the Rapanos and Carabell Cases (USACE 2008b), and the Field Guide to the Identification of the Ordinary High Water Mark (OHWM) on the Arid West Region of the United States (USACE, 2008c).

Suspected jurisdictional areas were field checked for the presence of an OHWM, definable channels and/or wetland vegetation, soils and hydrology. Where distinct boundaries between wetland vegetation communities, those that are dominated by obligate species, and upland vegetation communities, those that

are dominated by facultative upland or upland species, occurred, wetland limits were based upon vegetation mapping. Where the presence of wetlands was suggested by either hydrophytic vegetation or indicators of hydrology, a soil pit was established. A total of four soil pits were dug between February 22-23, 2012.

While in the field jurisdictional limits were recorded onto a color aerial photograph using visible landmarks or by walking polylines with a Trimble GPS unit. Upon completion of fieldwork, all data collected in the field were incorporated into a Geographic Information System (GIS) along with basemap data. The GIS was then used to quantify the extent of jurisdictional areas (Appendix A, Figures 5a-5t). Other data were recorded onto wetland data sheets (attached as Appendix C), available topographic data (attached as Appendix D), and USACE provided spreadsheets (attached as Appendix E). Upland non-jurisdictional features were further evaluated for hydrologic connectivity with the results provided in Appendix F.

3.0 REGULATORY SETTING

3.1 U.S. ARMY CORPS OF ENGINEERS

The USACE regulates the discharge of dredged or fill material into Waters of the U.S. pursuant to Section 404 of the CWA.

3.1.1 Waters of the U.S.

The term "Waters of the U.S." is defined in USACE regulations at 33 CFR Part 328.3(a) as:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters;
- Which or could be used by interstate or foreign travelers for recreation or other purposes; or
- From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
- Which are used or could be used for industrial purpose by industries in interstate commerce;
- All impoundments of waters otherwise defined as Waters of the U.S. under the definition;
- Tributaries of waters identified in paragraphs (a) (1) through (4) of this section;
- The territorial seas;
- Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1) through (6) of this section; and
- Waters of the U.S. do not include prior converted cropland.

The limits of USACE jurisdiction in non-tidal waters extends to the OHWM which is defined at 33 CFR 328.3(e) as:

> "…that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas."

3.1.2 Wetlands

The term "wetlands" (a subset of "Waters of the U.S.") is defined at 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated soil conditions." In 1987, the Corps published a manual to guide its field personnel in determining jurisdictional wetland boundaries followed by the Arid West Supplement in 2008. The methodology set forth in the 1987 Wetland Delineation Manual and Arid West Supplement generally requires that, in order to be considered a wetland, the vegetation, soils, and hydrology of an area exhibit at least minimal hydric characteristics. While the manual provides great detail in methodology and allows for varying special conditions, a wetland should normally meet each of the following three criteria:

1. The plant community must be determined to by hydrophytic based on: (1) the dominance test applied using the 50/20 rule[3], or (2) where the vegetation fails the dominance test and wetland hydrology and hydric soils are present, vegetation is determined to be hydrophytic using the Prevalence Index test[4] based upon the indicator status (i.e., rated as facultative or wetter) in the National List of Plant Species that Occur in Wetlands[5]);
2. Soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation (e.g., redoximorphic features with a matrix of low chroma indicating a relatively consistent fluctuation between aerobic and anaerobic conditions); and
3. Hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for a sufficient period to cause: (1) the formation of hydric soils; and (2) establishment of a hydrophytic plant community. A positive test for wetland hydrology is based on the presence of one primary or two secondary indicators.

3.1.3 Supreme Court Decisions

3.1.3.1 Solid Waste Agency of North Cook County

On January 9, 2001, the Supreme Court of the United States issued a decision on *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, et al.* with respect to whether the USACE could assert jurisdiction over isolated waters. The Solid Waste Agency of North Cook County (SWANCC) ruling stated that the USACE does not have jurisdiction over "non-navigable, isolated, intrastate" waters.

[3] If a particular species accounts for more than 50% of the total coverage of vegetation in the stratum, or for at least 20% of the total coverage in the stratum which the species was found, that species is defined as dominant.
[4] A Prevalence Index is calculated using wetland indicator status and relative abundance for each vascular plant species present.
[5] Reed, P.B., Jr. 1988. *National List of Plant Species that Occur in Wetlands*. U.S. Fish and Wildlife Service Biological Report 88(26.10).

3.1.3.2 Rapanos/Carabell

In the Supreme Court cases of *Rapanos* v. *United States* and *Carabell* v. *United States* (herein referred to as *Rapanos*), the court attempted to clarify the extent of USACE jurisdiction under the CWA. The nine Supreme Court justices issued five separate opinions (one plurality opinion, two concurring opinions, and two dissenting opinions) with no single opinion commanding a majority of the Court. In light of the *Rapanos* decision, the USACE will assert jurisdiction over traditional navigable waters, wetlands adjacent to traditional navigable waters, non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months) and wetlands that directly abut such tributaries. The USACE will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water: non-navigable tributaries that are not relatively permanent, wetlands adjacent to non-navigable tributaries that are not relatively permanent, and wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary.

Flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary indicate whether they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters. Analysis of potentially jurisdictional streams includes consideration of hydrologic and ecologic factors. The consideration of hydrological factors includes volume, duration and frequency of flow, proximity to traditional navigable waters, size of watershed, average annual rainfall, and average annual winter snow pack. The consideration of ecological factors also includes the ability for tributaries to carry pollutants and flood waters to a TNW, the ability of a tributary to provide aquatic habitat that supports a TNW, the ability of wetlands to trap and filter pollutants or store flood waters, and maintenance of water quality.

According to a USACE guidance document (USACE 2008a) the USACE generally will not assert jurisdiction over the following features: swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow) and ditches (including roadside ditches) excavated wholly in and draining only uplands that generally do not carry a relatively permanent flow of water.

3.2 REGIONAL WATER QUALITY CONTROL BOARD

The RWQCB regulates activities pursuant to Section 401(a)(1) of the federal CWA. Section 401 of the CWA specifies that certification from the State is required for any applicant requesting a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities that may result in any discharge into navigable waters.

3.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

The State of California regulates water resources under Section 1600-1616 of the California Fish and Game Code. Section 1602 states:

> "An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake."

CDFW jurisdiction includes ephemeral, intermittent and perennial watercourses and extends to the top of the bank of a stream or lake if unvegetated, or to the limit of the adjacent riparian habitat located contiguous to the watercourse if the stream or lake is vegetated.

4.0 RESULTS

A jurisdictional delineation of the survey area identified waters of the U.S. including wetlands and CDFW riparian and unvegetated streambed occurring onsite (Appendix A, Figures 5a-5t). Additionally, several non-jurisdiction upland ditches were identified within the survey area. The following is a discussion of survey results.

A total of five major offsite drainage features either cross or are located longitudinally to the rail corridor. The crossings from west to east are known as Warm Creek (Historic) (Bridge 1.1), Twin Creek (Bridge 2.2), Santa Ana River (Bridge 3.4), Bryn Mar Road (Bridge 5.75), and Mill Creek Zanja (Bridge 9.4). Mission Zanja Creek occurs adjacent to the eastern segment of the rail corridor. The following is a description of these features:

Santa Ana River

The main drainage feature within the Santa Ana Watershed is the Santa Ana River which is approximately 96 miles long, with its major upstream tributaries, including Bear Creek and Mill Creak. Other tributaries just downstream of the survey area include Lytle Creek originating in the San Gabriel Mountains and the San Jacinto River originating in the San Jacinto Mountains. The Santa Ana River bisects the survey area at Mile Post (MP) 3.4 (or Bridge 3.4), which corresponds with approximately River Mile 28.62 (or Reach 4).

A portion of the Santa Ana River occurs within the survey area between Waterman and Tippecanoe Streets (Appendix A, Figure 5g). The streambed consists primarily of unvegetated fine sandy substrate with some cobble and areas of raised vegetated bars/islands. The bars and islands are primarily dominated by willow (*Salix* sp.) scrub, cottonwood, and mulefat with some upland species occurring in the understory such as California sagebrush (*Artemisia californica*) and flat-top buckwheat (*Eriogonum fasciculatum*) (Appendix B, Photographs 6, 7, 8, and 11). Within the survey area the river is generally confined to the east and west by development or maintained (i.e., reinforced) floodplain. The northeastern and southeastern banks of the river are vegetated with cottonwood and willow scrub vegetation. The northwest portion of the river bank is leveed with concrete and metal mesh rip rap and the southwest bank supports a large stand of eucalyptus trees (Appendix B, Photograph 4). Off-road vehicles tracks are common within the unvegetated portion of the channel.

The portion of the Santa Ana River within the survey area supports an ephemeral flow regime. Ponded water was observed in the low points of the riverbed up to several weeks after winter and spring rains. However, during various biological surveys, the riverbed was generally observed to be dry. Within the survey area, the Santa Ana River supports waters of the U.S. and CDFW riparian and unvegetated streambed.

Mission Zanja Flood Control Channel

The Mission Zanja Flood Control Channel (or Mission Zanja Channel) parallels the rail corridor to the south from its confluence with the Santa Ana River to approximately 1,000 feet west of California Street; a total distance of approximately 2.6 miles. Owned and maintained by SBCFCD, the Zanja Channel

consists of an un-improved trapezoidal earthen channel with some segments supporting wire revetment (Appendix A, Figures 5g-5m; Appendix B, Photographs 6 and 12). The western terminus of the channel (outlet into Santa Ana River) supports dense native riparian vegetation and is heavily incised (15-20 feet). Trash and debris can be found throughout the channel.

The Mission Zanja Channel is culverted where it is crossed by paved roads through the cities of Loma Linda and Redlands. The channel has been artificial levied to decrease the risk of flooding to near by communities as a result to surrounding urban encroachment. Due to the surround urbanization there are many storm water drains that discharge into the channel.

Within the survey area, Mission Zanja Channel is ephemeral and supports waters of the U.S. and CDFW riparian and unvegetated streambed.

Twin Creek

Twin Creek (also known as "East Twin Creek and Warm Creek Channel") is a major channel that conveys flows from the Twin Creek Spreading Grounds in northern San Bernardino to its confluence with the Santa Ana River at the northeast quadrant of I-10/I-215 separation. Twin Creek is owned, operated, and maintained by the San Bernardino County Flood Control District (SBCFCD). According to USACE record drawings, Twin Creek consists of a 60-foot wide by 14-foot high rectangular concrete channel (RCC) through the survey area (Appendix A, 5c-5d; Appendix B, Photograph 3). Further downstream, the channel transitions to an unimproved (earthen) 202-foot wide base trapezoidal channel (with 2 to 1 side slopes) prior to discharging into Reach 5 of the Santa Ana River. The portion crossing the rail corridor was constructed in 1958.

Twin Creek primarily occurs as a large, unvegetated, concrete-lined channel, with vertically incised banks, and flows northeast to southwest through the survey area. The southern portion of the creek occurring in the survey area transitions to a sandy substrate with steeply sloped concrete banks. The sandy streambed supports sparse wetland vegetation, primarily low herbaceous plants and early successional shrub (mulefat) and sapling tree species (*Salix* spp., cottonwood). Within the survey area, Twin Creek is ephemeral and supports waters of the U.S. including wetlands and CDFW riparian and unvegetated streambed.

Warm Creek (Historic)

Warm Creek (Historic) extends from north of the City of Highland downstream to its confluence with the Santa Ana River at the southwest quadrant of the I-10/I-215 separation (Appendix A, Figure 5a; Appendix B, Photograph 5). The East Twin and Warm Creek improvements constructed by the USACE in 1961 diverted most of the original flows to the SAR at a point 1.4 miles upstream of its original confluence, resulting in a rerouting of the portion of Warm Creek from about 5th Street south to Central Avenue. The Warm Creek Bypass Channel today connects the Twin Creek Channel to the downstream Warm Creek Channel. Consequently, the left over portion of Warm Creek no longer serves as a regional flood control facility but only conveys tributary local drainage (about 18 square miles) from the City of San Bernardino (HDR 2012a); hence, this remaining portion of the channel is referred to as Warm Creek (Historic) throughout the delineation report. Currently, the City of San Bernardino owns, operates, and maintains Warm Creek (Historic).

Within the survey area, Warm Creek primarily occurs as a narrow, un-vegetated, concrete-lined channel, with vertically incised banks, and flows north to south through the survey area. Warm Creek supports waters of the U.S. and CDFW unvegetated streambed.

Mill Creek Zanja

Mill Creek Zanja occurs within the survey area at MP 9.5 (Appendix A, Figure 5r-5s; Appendix B, Photographs 13 and 14). The ephemeral creek was originally built by Native Americans as a ditch for water supply in 1819. As the area developed, the use of the Mill Creek transformed from water supply to a flood control and drainage channel. The Mill Creek Zanja, from 9th Street to Mill Creek, is designated as a State and Federal Historic Structure. SBCFCD owns the portion of the Mill Creek upstream and downstream of the Study Area. Mill Creek is covered with grouted rip rap as it conveys flow under I-10 (east crossing). The creek supports sparse non-native vegetation, sandy substrate, riprap banks, and substantial urban trash and debris.

Within the survey area, Mill Creek Zanja is ephemeral and supports waters of the U.S. and CDFW riparian and unvegetated streambed.

Proposed Non-Jurisdictional Features

Throughout the survey area, storm water from adjacent urban areas is channeled into the railroad ROW and transported through a series of ditches. Examples of these features are provided in Appendix A, Figures 5a-5t and Appendix B, Photographs 9 and 10. These features occur entirely within upland areas, exhibit indistinct or intermittent OHWM and do not support riparian vegetation. Non-jurisdictional ditches within the Survey area are presented in Table 2. Additional details on these features are provided in Appendix E and F.

Table 2. Non-Jurisdictional Ditches within the Survey Area

Ditch ID	Existing Acreage within the Survey Area*
NJD A1	0.05
NJD A2	0.01
NJD A3	0.01
NJD B	0.25
NJD C	0.55
NJD D	0.01
NJD E	0.05
NJD F	0.01
NJD G1	0.11
NJD G2	0.01
NJD H1	<0.01
NJD H2	<0.01
NJD I1	0.01
NJD I2	0.17
NJD I3	0.02
NJD I4	0.05
NJD J1	0.05
NJD J2	0.02
NJD A1	0.05

* Acreages rounded to the nearest hundredth acre.

4.1 USACE WETLANDS AND WATERS

As discussed in Section 2.0, Methods, suspected jurisdictional areas were field checked for the presence of an OHWM, definable channels and/or wetland vegetation, soils and hydrology. Four soil pits were conducted within the survey area. The following is a summary of the results; soil data sheets can be found in the attached delineation report (Appendix C).

Soil Pit 1

Soil Pit 1 (SP1) was located in a depressional area located north of the railroad tracks (Appendix A, Figures 5h; Appendix B, Photographs 15 and 16). The area is supported by stormwater runoff from the ROW and is located adjacent to the Zanja Channel. This area exhibited a predominance of hydrophytes including: arroyo willow (FACW), Fremont cottonwood (FAC), mulefat (FAC), and desert wild grape (*Vitis girdiana*; FAC). SP1 soils supported a loam matrix of very dark brown (10YR 3/2) and exhibited redoximorphic concentrations of strong brown (7.5YR 5/6) within 25 percent of the soil matrix. Hydric soils were identified as redox depression (F8). Hydrologic indicators at SP1 included water-stained leaves and biotic crust. SP1 meets the criteria for wetlands.

Soil Pit 2

Soil Pit 2 (SP2) was located in a depressional area located north of SP1 and the railroad tracks Appendix A, Figure 5h; Appendix B, Photograph 17). The area is supported by stormwater runoff from adjacent development and is blocked from connecting with the Zanja Channel by manufactured earthen berms (Appendix B, Photograph 18). The area supports moderately dense cover of 50 percent tamarisk (*Tamarisk* sp.; FAC) and 15 percent Johnson grass (*Sorghum halipense*; FACU). Using both the hydrophytic dominance test and prevalence index worksheets, SP2 does not meet USACE hydrophytic vegetation criteria SP2 supported a silty clay loam dusky red (2.5YR 3/2) matrix at 0-2 inches and a silty clay loam olive (5Y 4/3) matrix at 2-15 inches. Soils did not exhibit redoximorphic features. Hydric soils were identified as depleted matrix (F3). Hydrologic indicators at SP2 included surface soil cracks and inundation on aerial imagery. SP2 does not meet the criteria for wetlands.

Soil Pit 3

Soil Pit 3 (SP3) was located on the northern side of the Twin Creek streambed (Appendix A, Figure 5d; Appendix B, Photograph 2). Hydrophytic vegetation is dominant at SP1 and includes sparse coverage of mulefat (FAC) and Typha (*Typha* sp.; OBL). The area occurs at the transition from concrete-lined channel bottom to sandy substrate. This area is highly disturbed with a significant amount of urban trash and debris (Appendix B, Photograph 3). SP3 soils were inundated and had a hydrogen sulfide smell when agitated. Hydric soils were identified as redox hydrogen sulfide (A4). Hydrologic indicators at SP3 included surface water, saturation, water-stained leaves, and muck surface. SP3 meets the criteria for wetlands.

Soil Pit 4

Soil Pit 4 (SP4) was located on the southern side of the Twin Creek streambed (Appendix A, Figure 5d; Appendix B, Photograph 3). Hydrophytic vegetation is dominant at SP1 and includes: *Salix* sp. (FACW) and mulefat (FAC). Similar to SP3 area, SP4 occurs at the transition from concrete-lined channel bottom to sandy substrate and supports urban trash and debris (Appendix B, Photograph 3). SP4 soils were inundated and had a hydrogen sulfide smell when agitated. Hydric soils were identified as redox

hydrogen sulfide (A4). Hydrologic indicators at SP4 included saturation, water marks, water-stained leaves, inundation on aerial imagery, and muck surface. SP4 meets the criteria for wetlands.

In summary, the survey area primarily supports waters of the U.S. including several small areas of USACE wetlands (Appendix A, Figures 5a–5t). USACE jurisdictional areas mapped within the survey area are summarized in Table 2 below.

Table 3. USACE Jurisdictional Areas within the Survey Area

Jurisdiction	Existing Acreage within the Survey Area*
USACE Waters of the US	16.7
USACE Wetlands	0.05
Total	**16.75**
Proposed Non-Jurisdictional Ditch**	1.39

* Acreages rounded to the nearest hundredth acre.
** Acreages in Table 2 may not add up exactly due to rounding

4.2 CDFW JURISDICTIONAL AREAS

All USACE jurisdictional drainages within the survey area are considered jurisdictional by the CDFW. CDFW jurisdiction is similar to that of USACE jurisdiction, but also extends to the top of the bank and encompasses riparian vegetation when present (Appendix A, Figures 5a-5t). CDFW jurisdictional areas occurring within the survey area are summarized in Table 3.

Table 4. CDFW Jurisdictional Areas within the Survey Area

Jurisdiction	Existing Acreage within the Survey Area*
CDFW Riparian	8.77
CDFW Unvegetated Streambed	29.84
Total	**38.61**
Proposed Non-jurisdictional Ditch**	1.39

* Acreages rounded to the nearest hundredth acre.
** Acreages in Table 2 may not add up exactly due to rounding.

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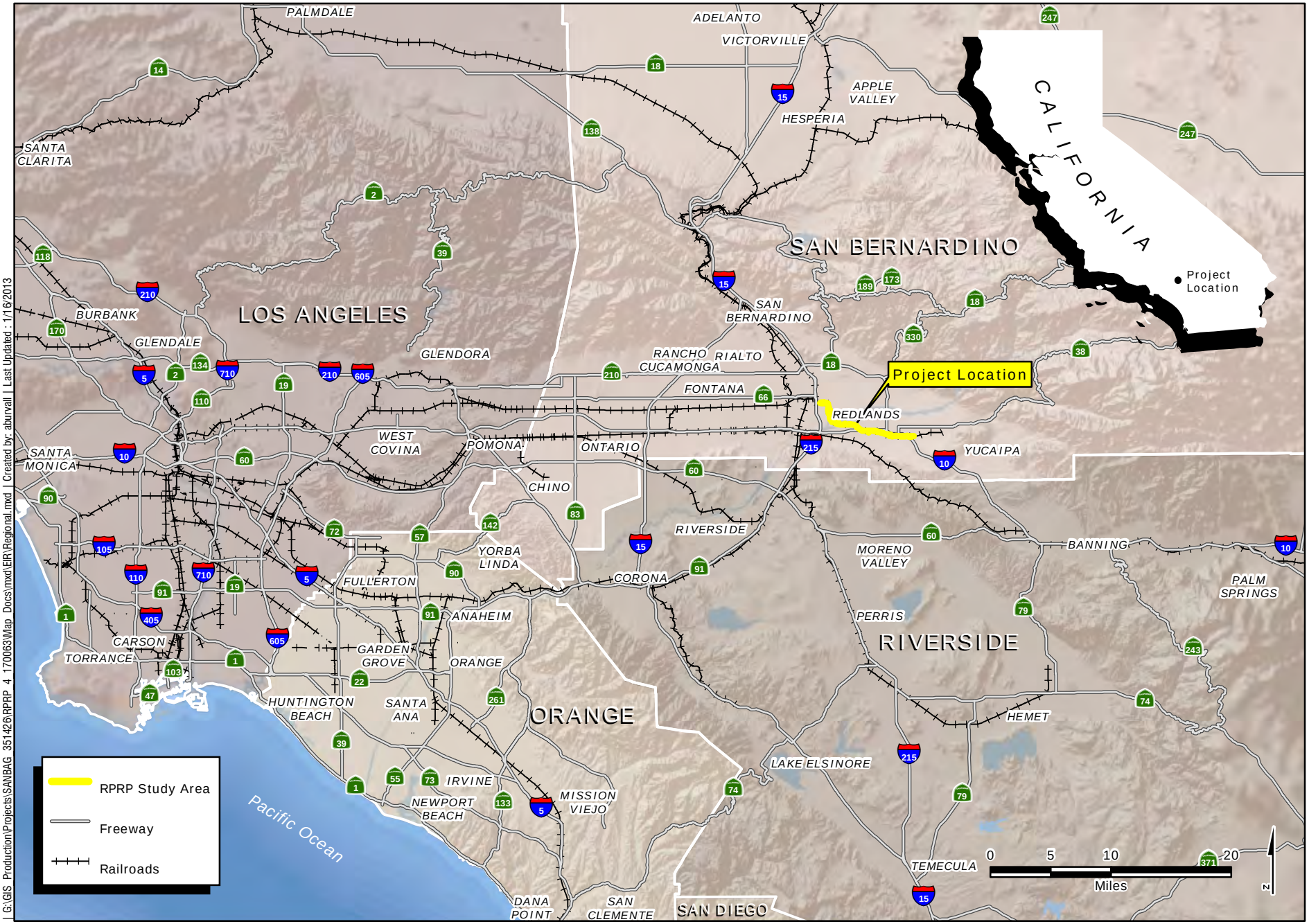
APPENDIX A

Figures



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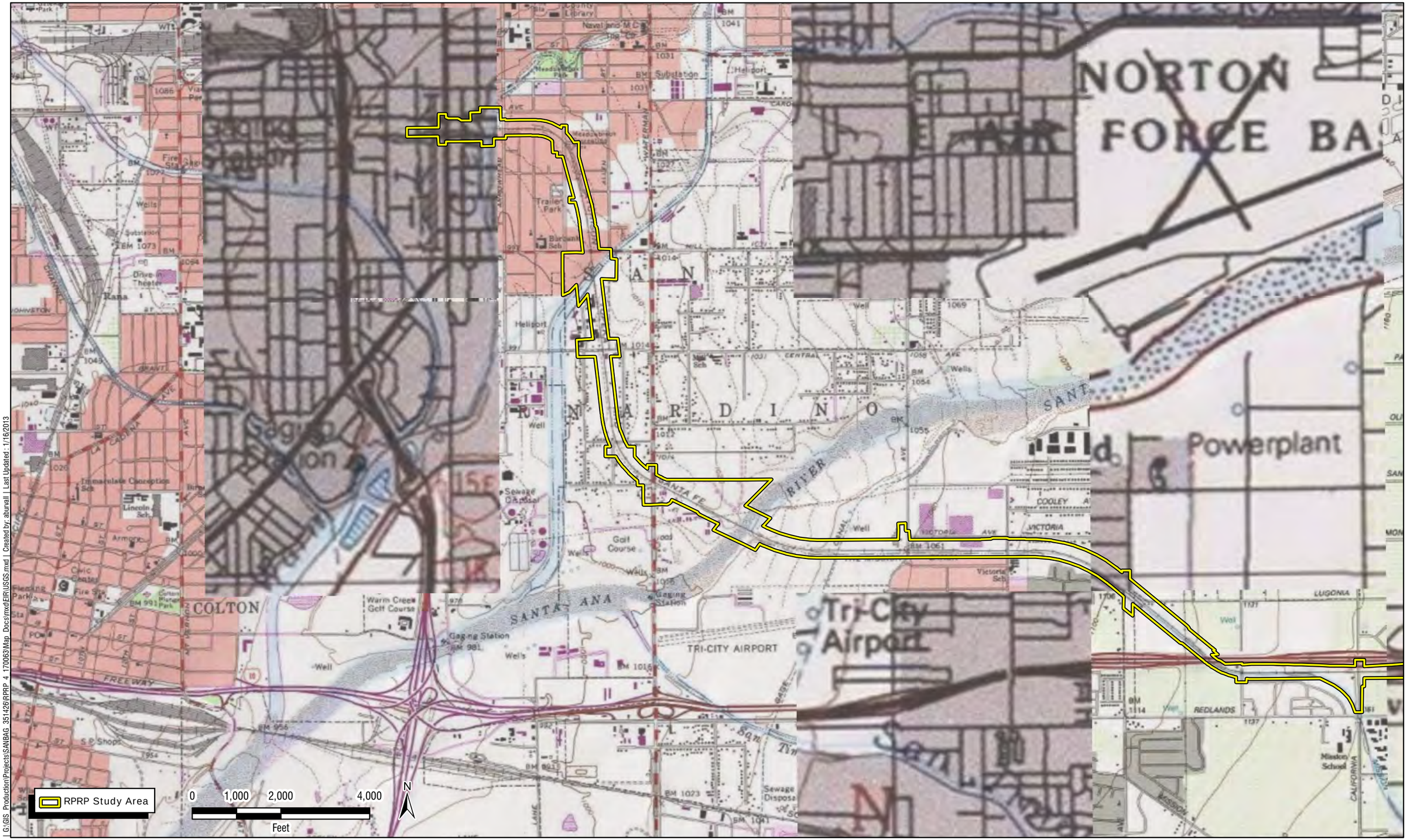
Regional Location Map

Figure 1

FTA/SANBAG | Redlands Passenger Rail Project | JDR



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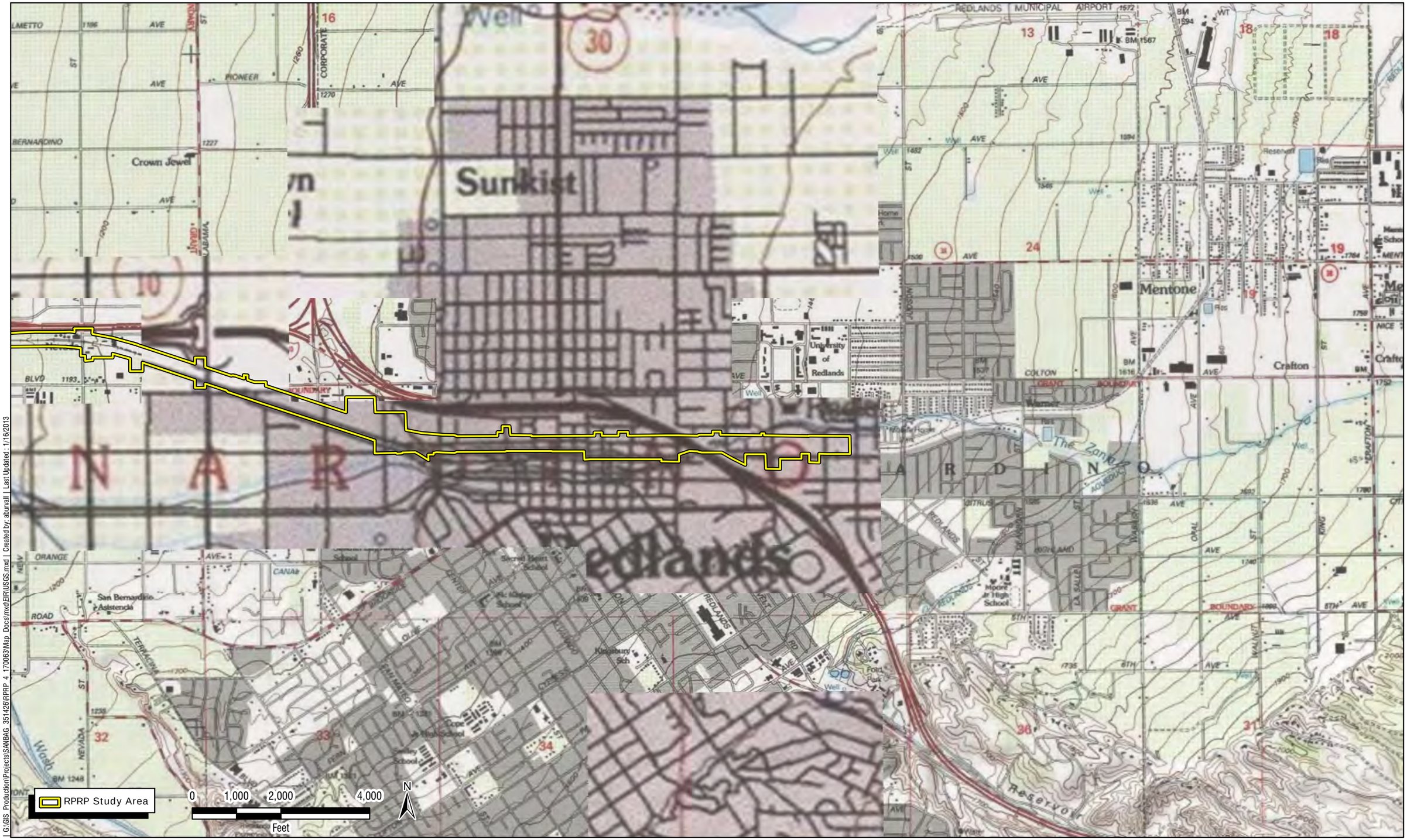
USGS Topographic Map
Figure 2a
FTA/SANBAG | Redlands Passenger Rail Project | JDR



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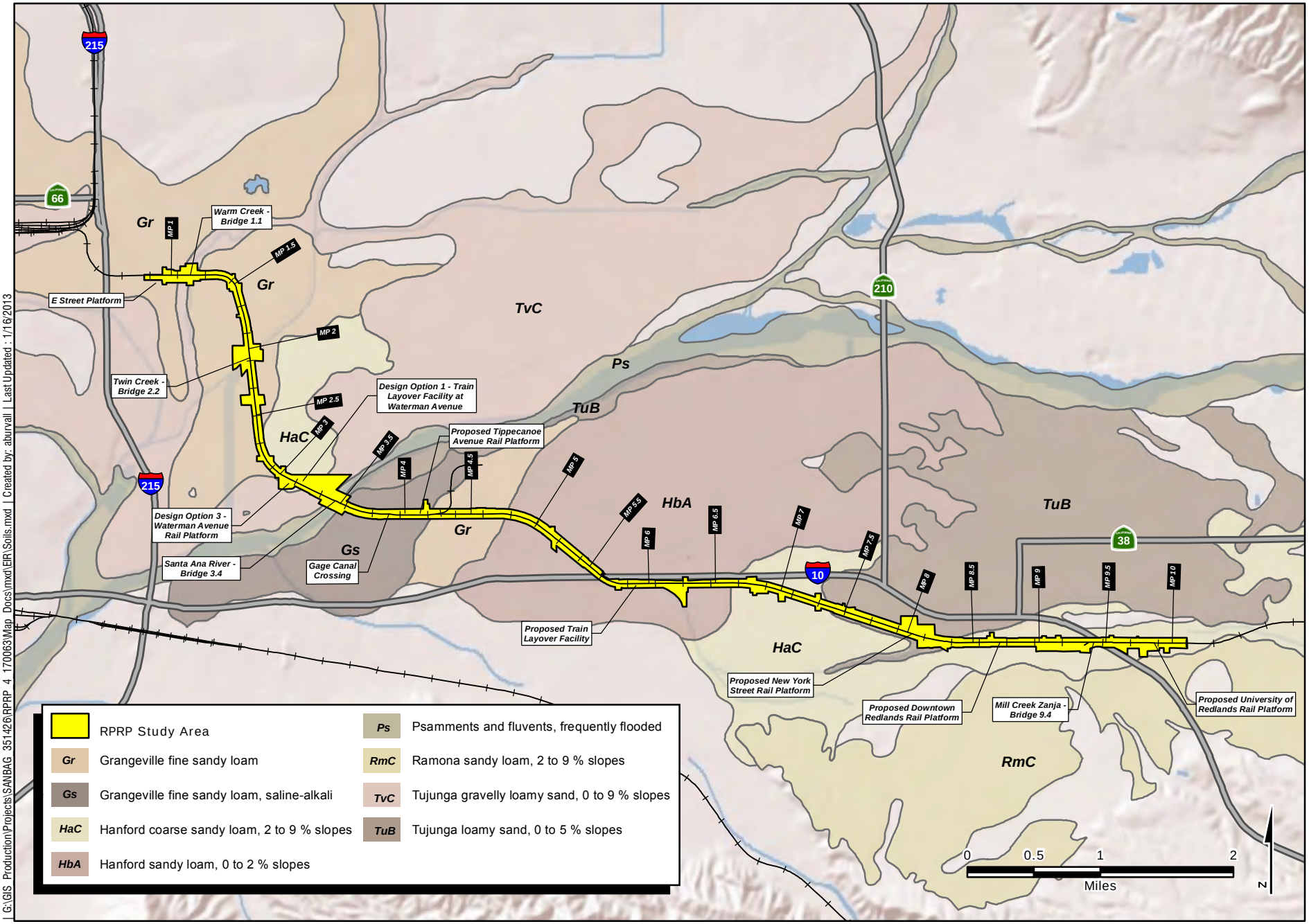
USGS Topographic Map

Figure 2b

FTA/SANBAG | Redlands Passenger Rail Project | JDR



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Soils

Figure 3

FTA/SANBAG | Redlands Passenger Rail Project | JDR

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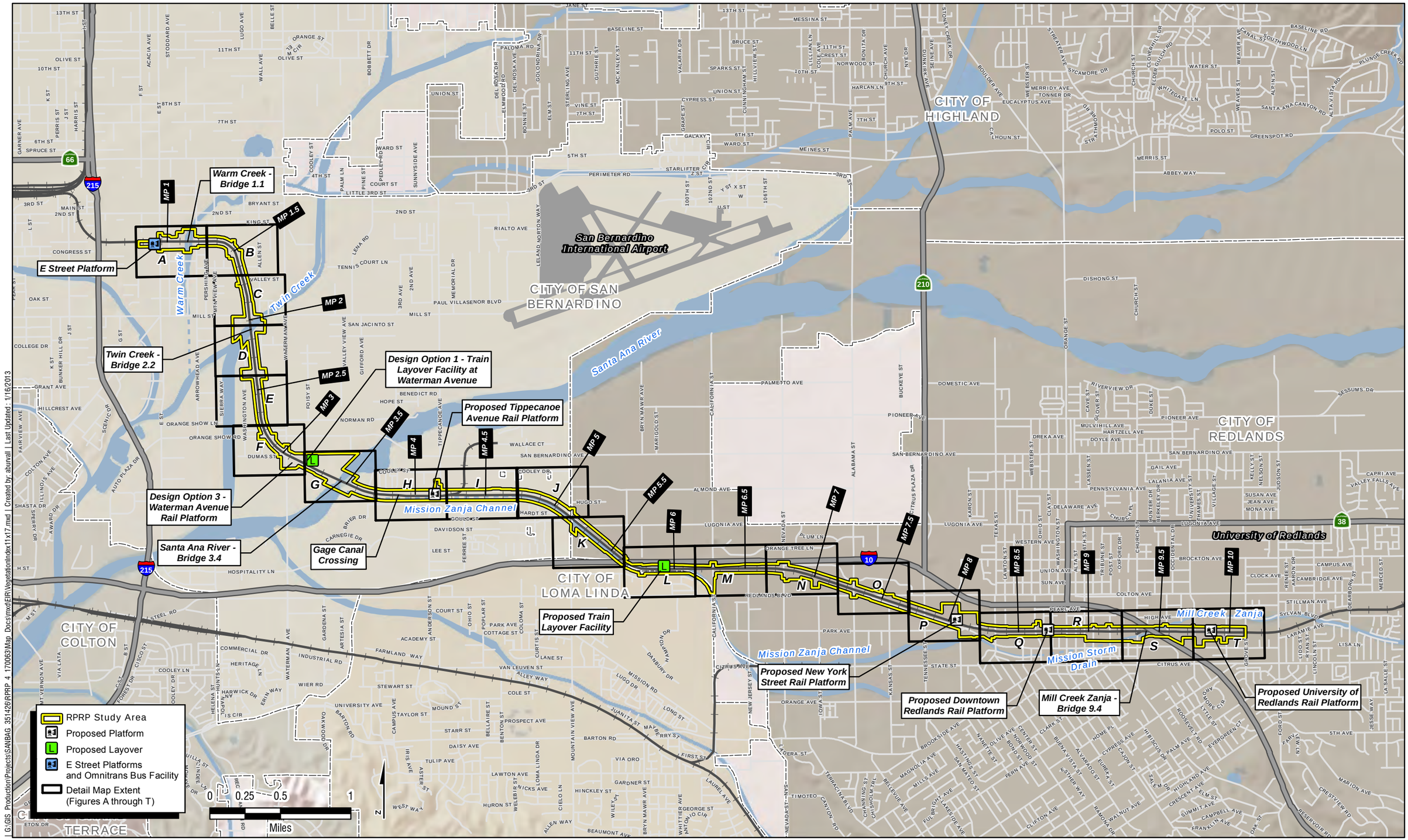

Vegetation Communities Overview

Figure 4

FTA/SANBAG | Redlands Passenger Rail Project | JDR

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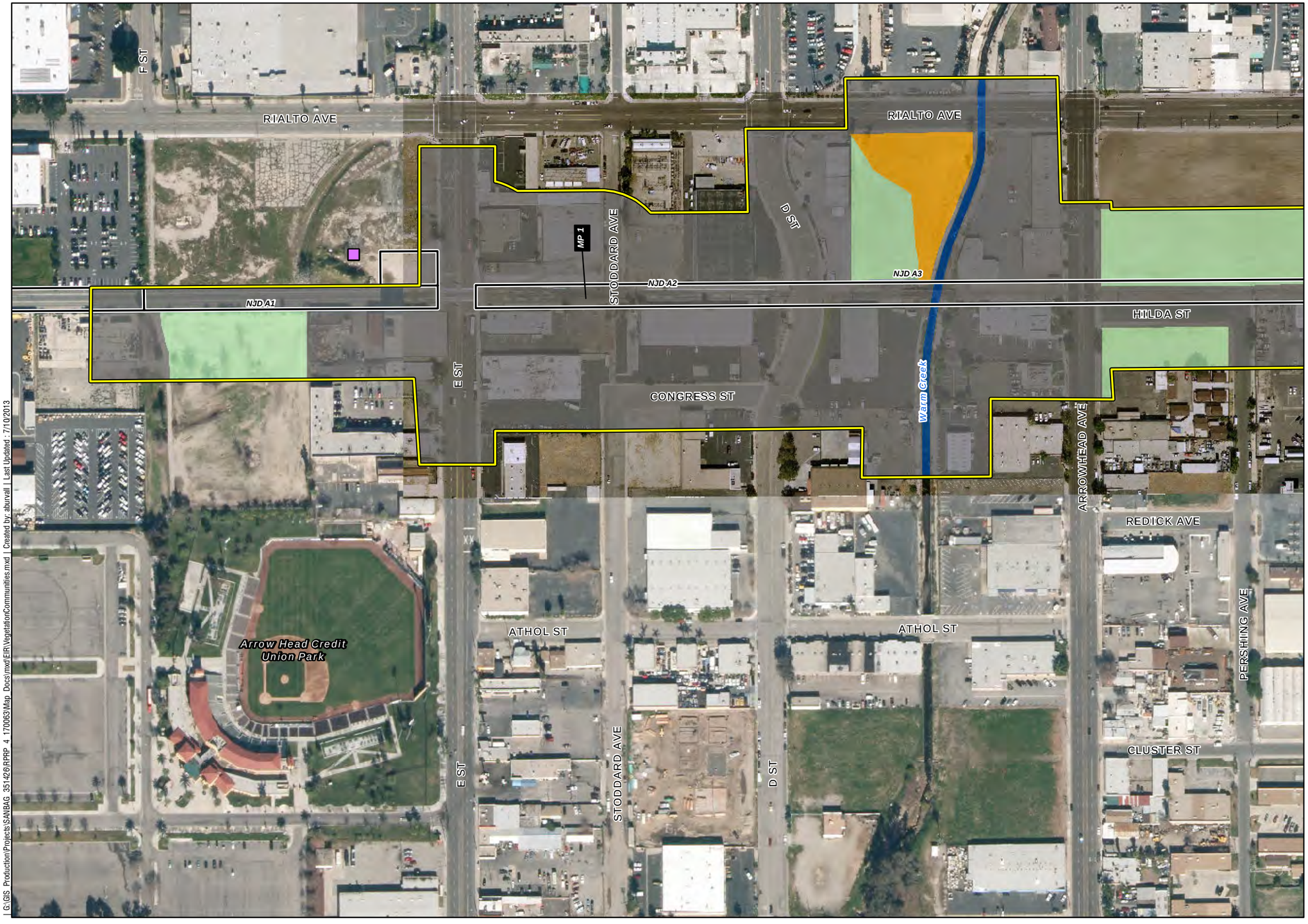


RPRP Study Area

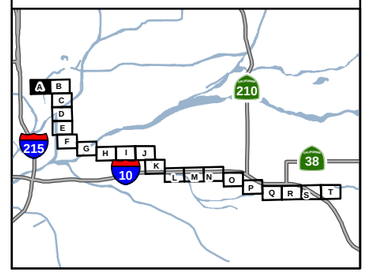
Railroad ROW

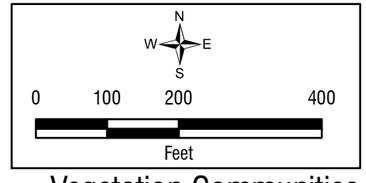
Vegetation Community

- Disturbed Habitat
- Disturbed Wetland
- Eucalyptus Woodland
- Flat-top Buckwheat Scrub
- Mulefat Scrub
- Non Jurisdictional Ditch
- Non-native Grassland
- NonVegetated Channel
- Oak Woodland
- Orchard and Vineyards
- Southern Willow Scrub
- Southern Cottonwood Willow Riparian Forest
- Tamarisk Scrub
- Urban/Developed

Species Observation

- Non-Breeding Season BUOW Observation
- Least Bell's Vireo
- Sana Ana River Woolly Star





Vegetation Communities

Figure 4 A

FTA/SANBAG | Redlands Passenger Rail Project | JDR

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RPRP Study Area

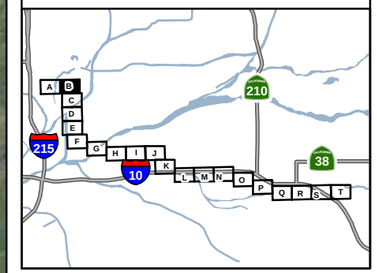
Railroad ROW

Vegetation Community

- Disturbed Habitat
- Disturbed Wetland
- Eucalyptus Woodland
- Flat-top Buckwheat Scrub
- Mulefat Scrub
- Non Jurisdictional Ditch
- Non-native Grassland
- NonVegetated Channel
- Oak Woodland
- Orchard and Vineyards
- Southern Willow Scrub
- Southern Cottonwood Willow Riparian Forest
- Tamarisk Scrub
- Urban/Developed

Species Observation

- Non-Breeding Season BUOW Observation
- Least Bell's Vireo
- Sana Ana River Woolly Star



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Vegetation Communities

Figure 4 B

FTA/SANBAG | Redlands Passenger Rail Project | JDR

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RPRP Study Area

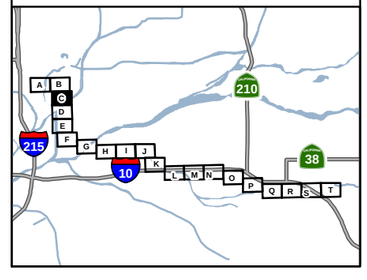
Railroad ROW

Vegetation Community

- Disturbed Habitat
- Disturbed Wetland
- Eucalyptus Woodland
- Flat-top Buckwheat Scrub
- Mulefat Scrub
- Non Jurisdictional Ditch
- Non-native Grassland
- NonVegetated Channel
- Oak Woodland
- Orchard and Vineyards
- Southern Willow Scrub
- Southern Cottonwood Willow Riparian Forest
- Tamarisk Scrub
- Urban/Developed

Species Observation

- Non-Breeding Season BUOW Observation
- Least Bell's Vireo
- Sana Ana River Woolly Star



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Vegetation Communities

Figure 4 C

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RPRP Study Area

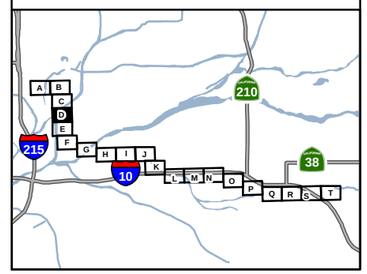
Railroad ROW

Vegetation Community

- Disturbed Habitat
- Disturbed Wetland
- Eucalyptus Woodland
- Flat-top Buckwheat Scrub
- Mulefat Scrub
- Non Jurisdictional Ditch
- Non-native Grassland
- NonVegetated Channel
- Oak Woodland
- Orchard and Vineyards
- Southern Willow Scrub
- Southern Cottonwood Willow Riparian Forest
- Tamarisk Scrub
- Urban/Developed

Species Observation

- Non-Breeding Season BUOW Observation
- Least Bell's Vireo
- Sana Ana River Woolly Star



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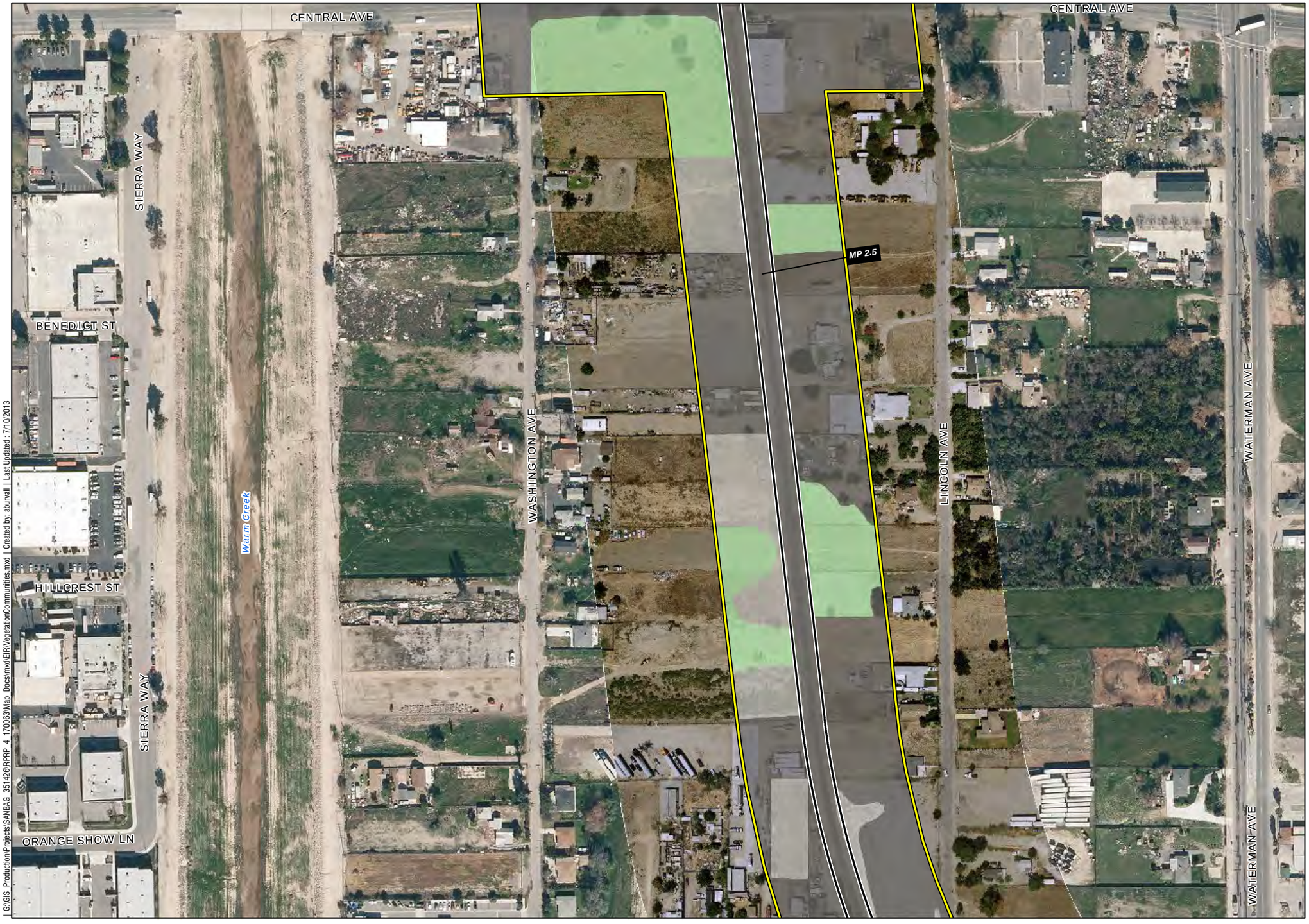
Vegetation Communities

Figure 4 D

FTA/SANBAG | Redlands Passenger Rail Project | JDR



RPRP Study Area

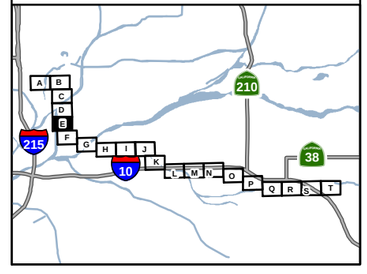
Railroad ROW

Vegetation Community

- Disturbed Habitat
- Disturbed Wetland
- Eucalyptus Woodland
- Flat-top Buckwheat Scrub
- Mulefat Scrub
- Non Jurisdictional Ditch
- Non-native Grassland
- NonVegetated Channel
- Oak Woodland
- Orchard and Vineyards
- Southern Willow Scrub
- Southern Cottonwood Willow Riparian Forest
- Tamarisk Scrub
- Urban/Developed

Species Observation

- Non-Breeding Season BUOW Observation
- Least Bell's Vireo
- Sana Ana River Woolly Star



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Vegetation Communities

Figure 4 E

FTA/SANBAG | Redlands Passenger Rail Project | JDR

RPRP Study Area

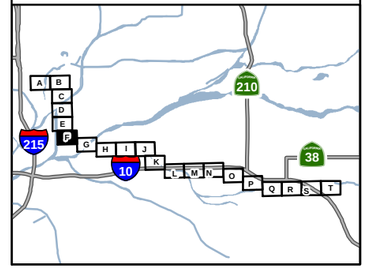
Railroad ROW

Vegetation Community

- Disturbed Habitat
- Disturbed Wetland
- Eucalyptus Woodland
- Flat-top Buckwheat Scrub
- Mulefat Scrub
- Non Jurisdictional Ditch
- Non-native Grassland
- NonVegetated Channel
- Oak Woodland
- Orchard and Vineyards
- Southern Willow Scrub
- Southern Cottonwood Willow Riparian Forest
- Tamarisk Scrub
- Urban/Developed

Species Observation

- Non-Breeding Season BUOW Observation
- Least Bell's Vireo
- Sana Ana River Woolly Star



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Vegetation Communities

Figure 4 F

FTA/SANBAG | Redlands Passenger Rail Project | JDR

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RPRP Study Area

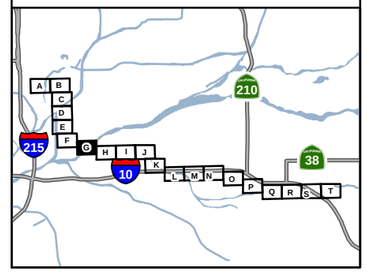
Railroad ROW

Vegetation Community

- Disturbed Habitat
- Disturbed Wetland
- Eucalyptus Woodland
- Flat-top Buckwheat Scrub
- Mulefat Scrub
- Non Jurisdictional Ditch
- Non-native Grassland
- NonVegetated Channel
- Oak Woodland
- Orchard and Vineyards
- Southern Willow Scrub
- Southern Cottonwood Willow Riparian Forest
- Tamarisk Scrub
- Urban/Developed

Species Observation

- Non-Breeding Season BUOW Observation
- Least Bell's Vireo
- Sana Ana River Woolly Star



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Vegetation Communities

Figure 4 G

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RPRP Study Area

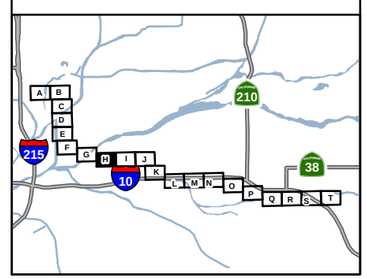
Railroad ROW

Vegetation Community

- Disturbed Habitat
- Disturbed Wetland
- Eucalyptus Woodland
- Flat-top Buckwheat Scrub
- Mulefat Scrub
- Non Jurisdictional Ditch
- Non-native Grassland
- NonVegetated Channel
- Oak Woodland
- Orchard and Vineyards
- Southern Willow Scrub
- Southern Cottonwood Willow Riparian Forest
- Tamarisk Scrub
- Urban/Developed

Species Observation

- Non-Breeding Season BUOW Observation
- Least Bell's Vireo
- Sana Ana River Woolly Star



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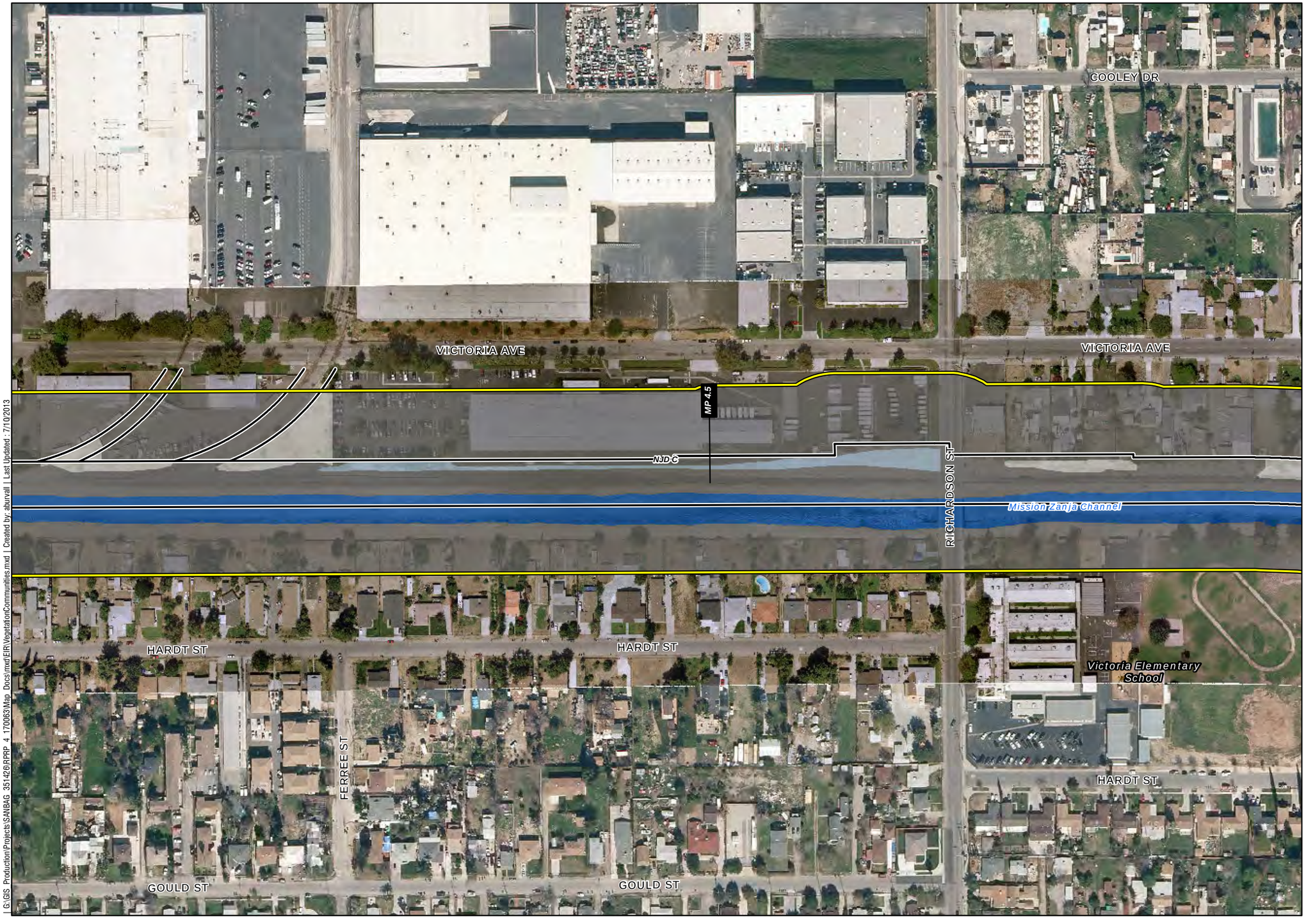
Vegetation Communities

Figure 4 H

FTA/SANBAG | Redlands Passenger Rail Project | JDR



RPRP Study Area

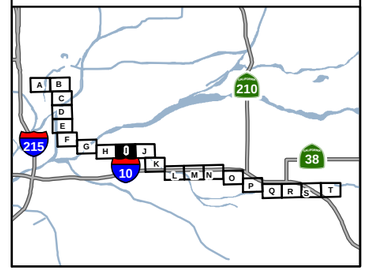
Railroad ROW

Vegetation Community

- Disturbed Habitat
- Disturbed Wetland
- Eucalyptus Woodland
- Flat-top Buckwheat Scrub
- Mulefat Scrub
- Non Jurisdictional Ditch
- Non-native Grassland
- NonVegetated Channel
- Oak Woodland
- Orchard and Vineyards
- Southern Willow Scrub
- Southern Cottonwood Willow Riparian Forest
- Tamarisk Scrub
- Urban/Developed

Species Observation

- Non-Breeding Season BUOW Observation
- Least Bell's Vireo
- Sana Ana River Woolly Star



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Vegetation Communities

Figure 4 I

FTA/SANBAG | Redlands Passenger Rail Project | JDR

RPRP Study Area

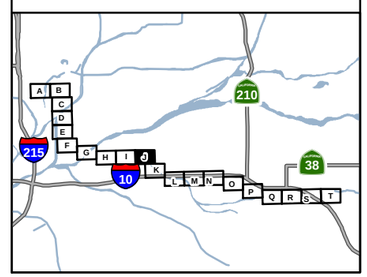
Railroad ROW

Vegetation Community

- Disturbed Habitat
- Disturbed Wetland
- Eucalyptus Woodland
- Flat-top Buckwheat Scrub
- Mulefat Scrub
- Non Jurisdictional Ditch
- Non-native Grassland
- NonVegetated Channel
- Oak Woodland
- Orchard and Vineyards
- Southern Willow Scrub
- Southern Cottonwood Willow Riparian Forest
- Tamarisk Scrub
- Urban/Developed

Species Observation

- Non-Breeding Season BUOW Observation
- Least Bell's Vireo
- Sana Ana River Woolly Star



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Vegetation Communities

Figure 4 J

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RPRP Study Area

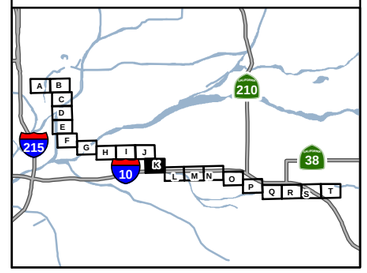
Railroad ROW

Vegetation Community

- Disturbed Habitat
- Disturbed Wetland
- Eucalyptus Woodland
- Flat-top Buckwheat Scrub
- Mulefat Scrub
- Non Jurisdictional Ditch
- Non-native Grassland
- NonVegetated Channel
- Oak Woodland
- Orchard and Vineyards
- Southern Willow Scrub
- Southern Cottonwood Willow Riparian Forest
- Tamarisk Scrub
- Urban/Developed

Species Observation

- Non-Breeding Season BUOW Observation
- Least Bell's Vireo
- Sana Ana River Woolly Star



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Vegetation Communities

Figure 4 K

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RPRP Study Area

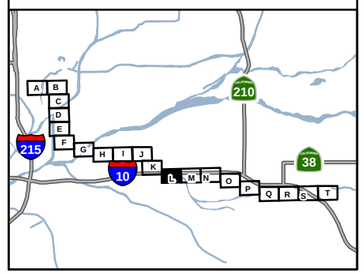
Railroad ROW

Vegetation Community

- Disturbed Habitat
- Disturbed Wetland
- Eucalyptus Woodland
- Flat-top Buckwheat Scrub
- Mulefat Scrub
- Non Jurisdictional Ditch
- Non-native Grassland
- NonVegetated Channel
- Oak Woodland
- Orchard and Vineyards
- Southern Willow Scrub
- Southern Cottonwood Willow Riparian Forest
- Tamarisk Scrub
- Urban/Developed

Species Observation

- Non-Breeding Season BUOW Observation
- Least Bell's Vireo
- Sana Ana River Woolly Star



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Vegetation Communities

Figure 4 L

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RPRP Study Area

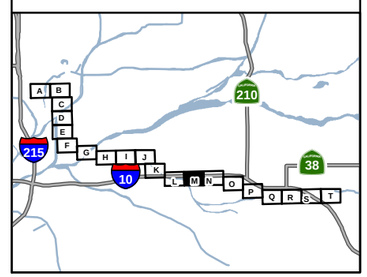
Railroad ROW

Vegetation Community

- Disturbed Habitat
- Disturbed Wetland
- Eucalyptus Woodland
- Flat-top Buckwheat Scrub
- Mulefat Scrub
- Non Jurisdictional Ditch
- Non-native Grassland
- NonVegetated Channel
- Oak Woodland
- Orchard and Vineyards
- Southern Willow Scrub
- Southern Cottonwood Willow Riparian Forest
- Tamarisk Scrub
- Urban/Developed

Species Observation

- Non-Breeding Season BUOW Observation
- Least Bell's Vireo
- Sana Ana River Woolly Star



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Vegetation Communities

Figure 4 M

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RPRP Study Area

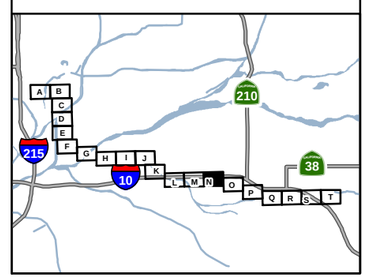
Railroad ROW

Vegetation Community

- Disturbed Habitat
- Disturbed Wetland
- Eucalyptus Woodland
- Flat-top Buckwheat Scrub
- Mulefat Scrub
- Non Jurisdictional Ditch
- Non-native Grassland
- NonVegetated Channel
- Oak Woodland
- Orchard and Vineyards
- Southern Willow Scrub
- Southern Cottonwood Willow Riparian Forest
- Tamarisk Scrub
- Urban/Developed

Species Observation

- Non-Breeding Season BUOW Observation
- Least Bell's Vireo
- Sana Ana River Woolly Star



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Vegetation Communities

Figure 4 N

FTA/SANBAG | Redlands Passenger Rail Project | JDR

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ALABAMA ST
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TRI-CITY CENTER DR
INDUSTRIAL PARK AVE
MP 7.5
NJD H1
NJD H2
COLTON AVE
NJD I1
NJD I2
REDLANDS BLVD
COLTON AVE
NJD I2
NJD I3
ALABAMA ST
KANSAS ST
REDLANDS BLVD

RPRP Study Area
Railroad ROW

Vegetation Community
- Disturbed Habitat
- Disturbed Wetland
- Eucalyptus Woodland
- Flat-top Buckwheat Scrub
- Mulefat Scrub
- Non Jurisdictional Ditch
- Non-native Grassland
- NonVegetated Channel
- Oak Woodland
- Orchard and Vineyards
- Southern Willow Scrub
- Southern Cottonwood Willow Riparian Forest
- Tamarisk Scrub
- Urban/Developed

Species Observation
- Non-Breeding Season BUOW Observation
- Least Bell's Vireo
- Sana Ana River Woolly Star

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Vegetation Communities

Figure 4 0
FTA/SANBAG | Redlands Passenger Rail Project | JDR

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RPRP Study Area

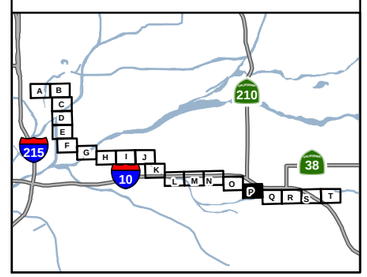
Railroad ROW

Vegetation Community

- Disturbed Habitat
- Disturbed Wetland
- Eucalyptus Woodland
- Flat-top Buckwheat Scrub
- Mulefat Scrub
- Non Jurisdictional Ditch
- Non-native Grassland
- NonVegetated Channel
- Oak Woodland
- Orchard and Vineyards
- Southern Willow Scrub
- Southern Cottonwood Willow Riparian Forest
- Tamarisk Scrub
- Urban/Developed

Species Observation

- Non-Breeding Season BUOW Observation
- Least Bell's Vireo
- Sana Ana River Woolly Star



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Vegetation Communities

Figure 4 P

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RPRP Study Area

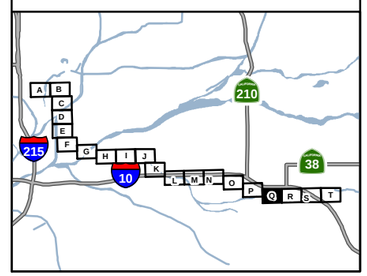
Railroad ROW

Vegetation Community

- Disturbed Habitat
- Disturbed Wetland
- Eucalyptus Woodland
- Flat-top Buckwheat Scrub
- Mulefat Scrub
- Non Jurisdictional Ditch
- Non-native Grassland
- NonVegetated Channel
- Oak Woodland
- Orchard and Vineyards
- Southern Willow Scrub
- Southern Cottonwood Willow Riparian Forest
- Tamarisk Scrub
- Urban/Developed

Species Observation

- Non-Breeding Season BUOW Observation
- Least Bell's Vireo
- Sana Ana River Woolly Star



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Vegetation Communities

Figure 4 Q

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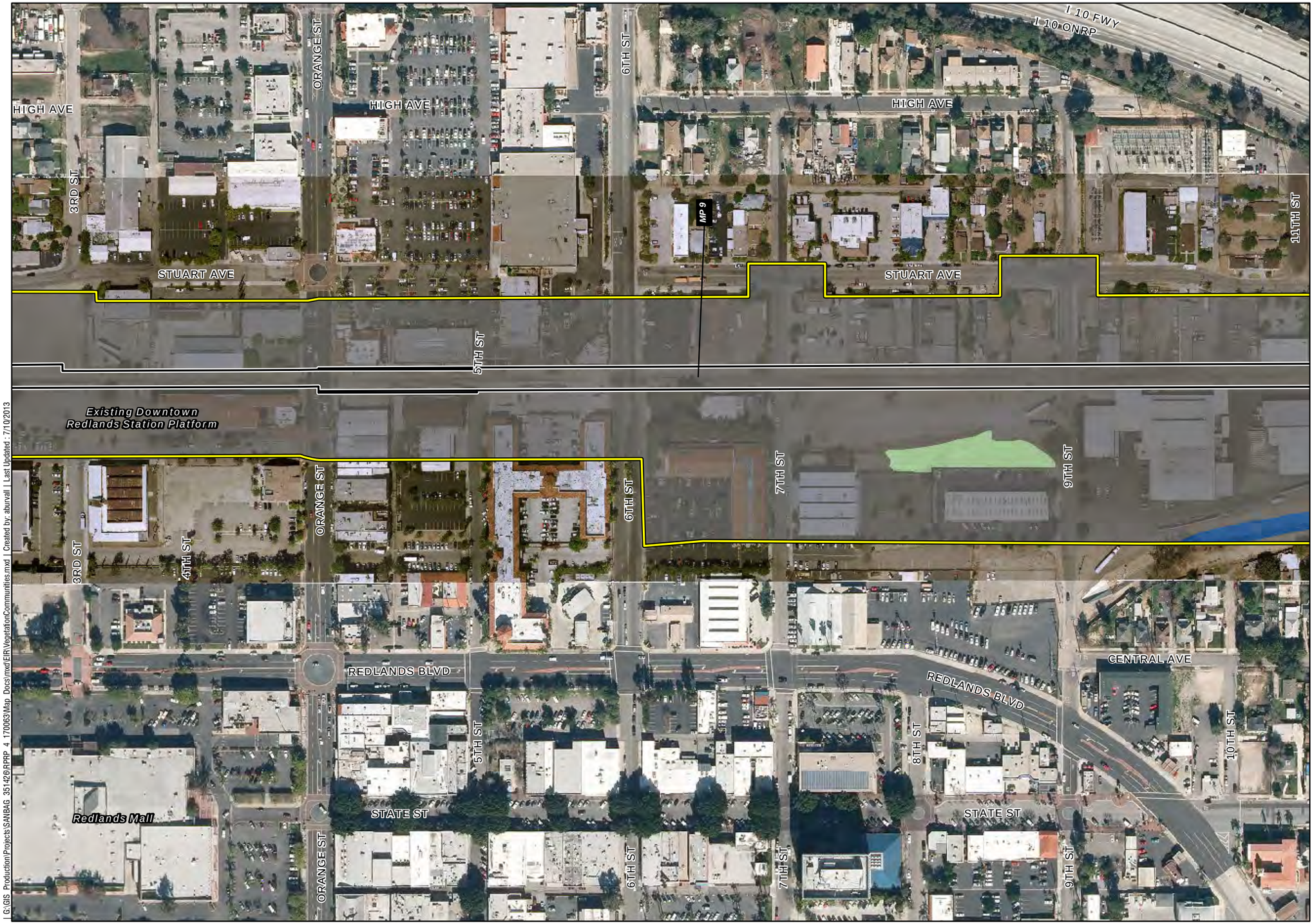


RPRP Study Area

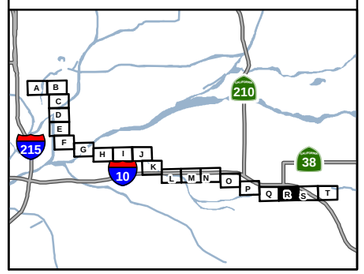
Railroad ROW

Vegetation Community

- Disturbed Habitat
- Disturbed Wetland
- Eucalyptus Woodland
- Flat-top Buckwheat Scrub
- Mulefat Scrub
- Non Jurisdictional Ditch
- Non-native Grassland
- NonVegetated Channel
- Oak Woodland
- Orchard and Vineyards
- Southern Willow Scrub
- Southern Cottonwood Willow Riparian Forest
- Tamarisk Scrub
- Urban/Developed

Species Observation

- Non-Breeding Season BUOW Observation
- Least Bell's Vireo
- Sana Ana River Woolly Star



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Vegetation Communities

Figure 4 R

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RPRP Study Area

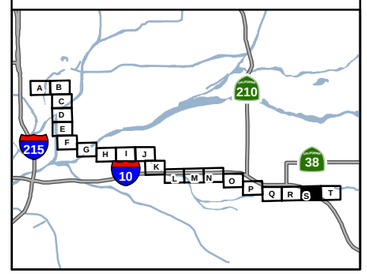
Railroad ROW

Vegetation Community

- Disturbed Habitat
- Disturbed Wetland
- Eucalyptus Woodland
- Flat-top Buckwheat Scrub
- Mulefat Scrub
- Non Jurisdictional Ditch
- Non-native Grassland
- NonVegetated Channel
- Oak Woodland
- Orchard and Vineyards
- Southern Willow Scrub
- Southern Cottonwood Willow Riparian Forest
- Tamarisk Scrub
- Urban/Developed

Species Observation

- Non-Breeding Season BUOW Observation
- Least Bell's Vireo
- Sana Ana River Woolly Star



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Vegetation Communities

Figure 4 S

FTA/SANBAG | Redlands Passenger Rail Project | JDR

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RPRP Study Area

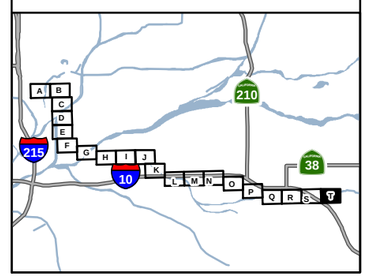
Railroad ROW

Vegetation Community

- Disturbed Habitat
- Disturbed Wetland
- Eucalyptus Woodland
- Flat-top Buckwheat Scrub
- Mulefat Scrub
- Non Jurisdictional Ditch
- Non-native Grassland
- NonVegetated Channel
- Oak Woodland
- Orchard and Vineyards
- Southern Willow Scrub
- Southern Cottonwood Willow Riparian Forest
- Tamarisk Scrub
- Urban/Developed

Species Observation

- Non-Breeding Season BUOW Observation
- Least Bell's Vireo
- Sana Ana River Woolly Star



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Vegetation Communities

Figure 4 T

FTA/SANBAG | Redlands Passenger Rail Project | JDR

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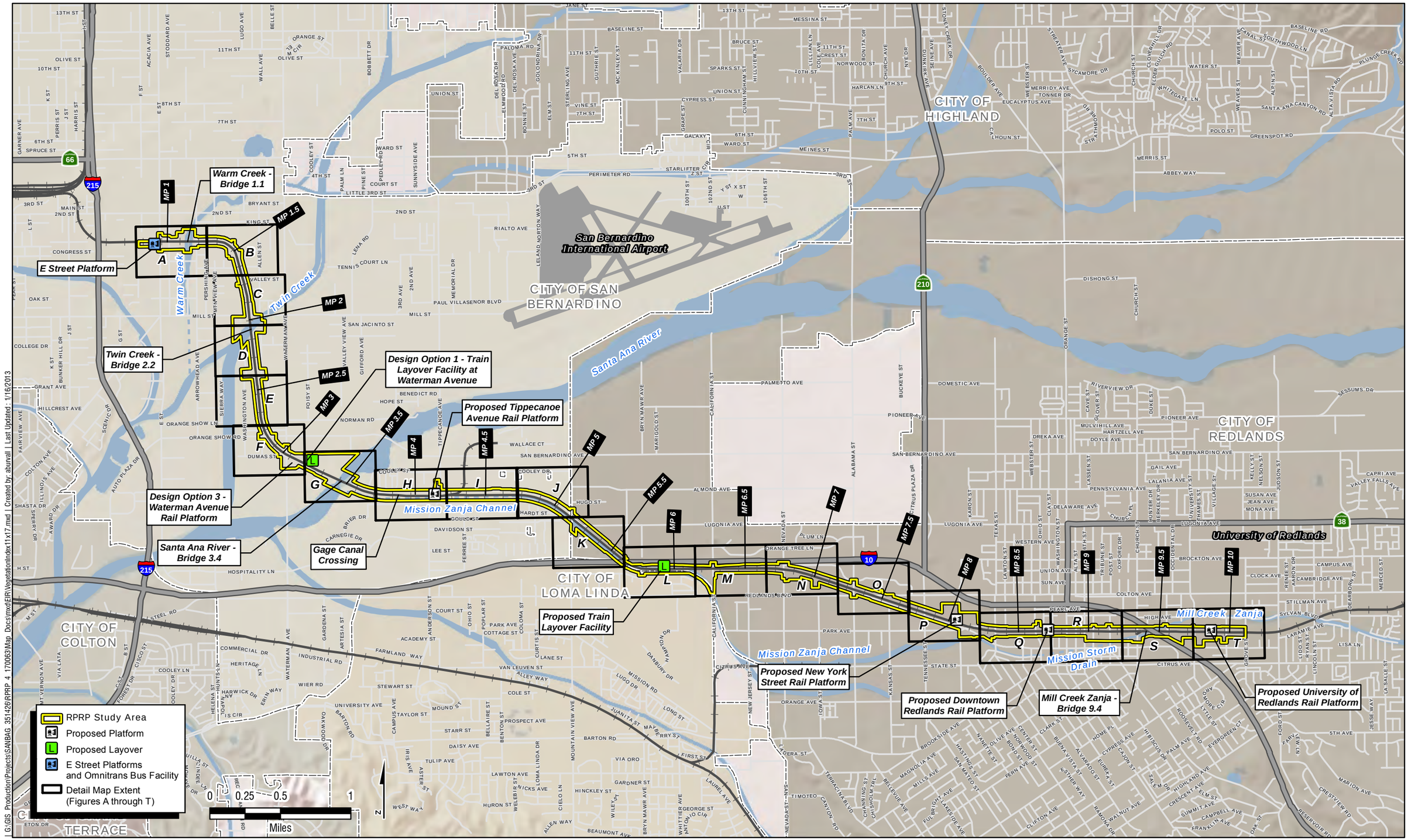

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Wetland and Waters of the U.S Overview

Figure 5

FTA/SANBAG | Redlands Passenger Rail Project | JDR

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RPRP Study Area

Railroad ROW

Jurisdiction

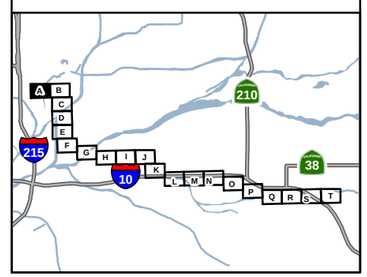
CDFW

USACE Waters of the U.S

USACE Wetlands

Non Jurisdictional Ditch

Soil Pit



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Wetland and Waters of the U.S

Figure 5 A

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RPRP Study Area

Railroad ROW

Jurisdiction

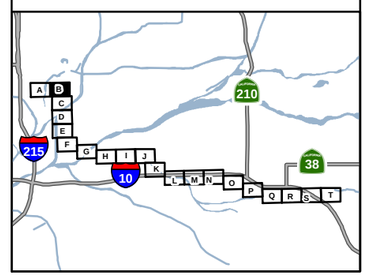
CDFW

USACE Waters of the U.S

USACE Wetlands

Non Jurisdictional Ditch

Soil Pit



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Wetland and Waters of the U.S

Figure 5 B

FTA/SANBAG | Redlands Passenger Rail Project | JDR

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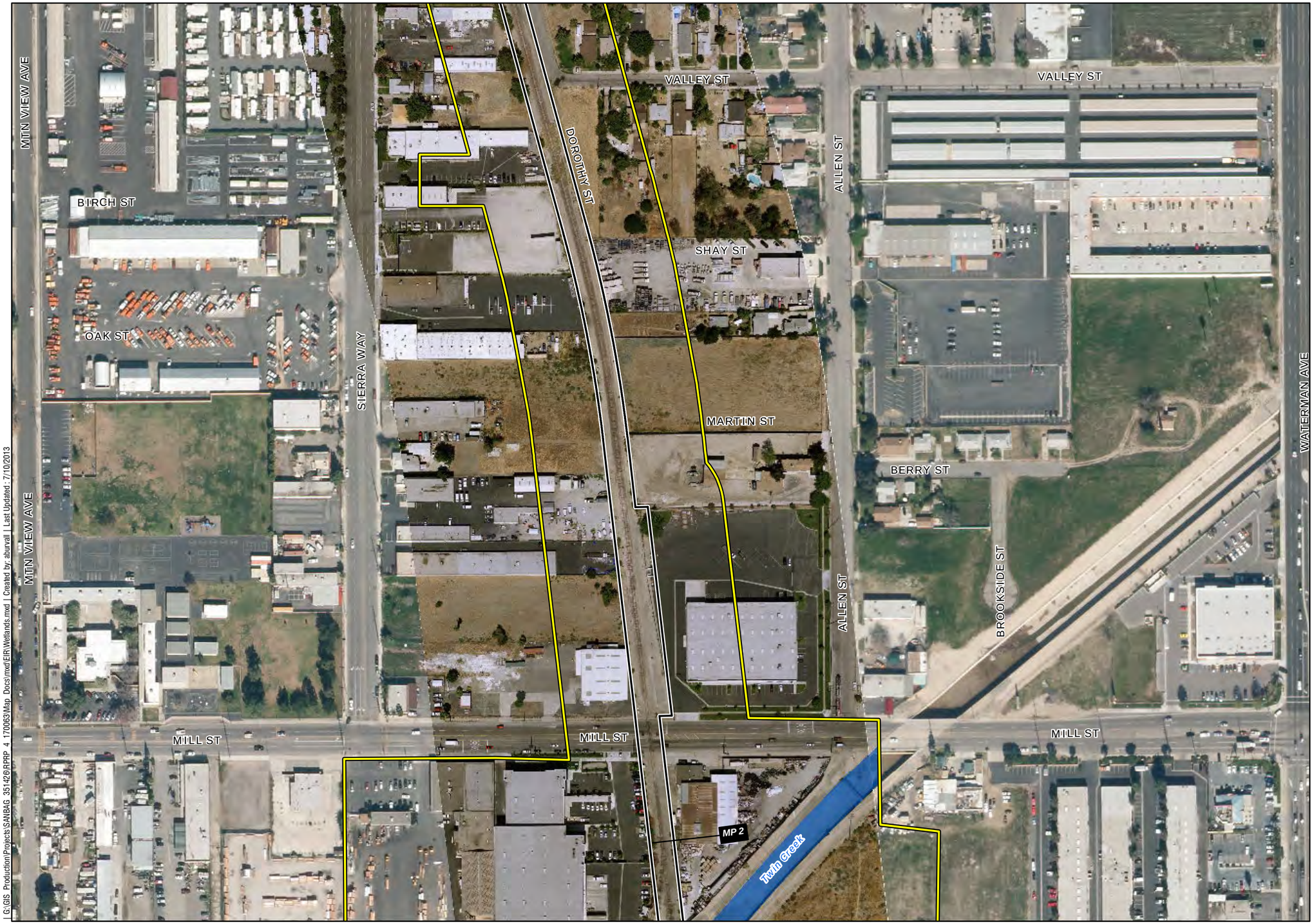


RPRP Study Area

Railroad ROW

Jurisdiction

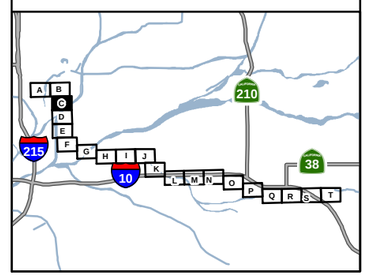
CDFW

USACE Waters of the U.S

USACE Wetlands

Non Jurisdictional Ditch

Soil Pit



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Wetland and Waters of the U.S

Figure 5 C

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RPRP Study Area

Railroad ROW

Jurisdiction

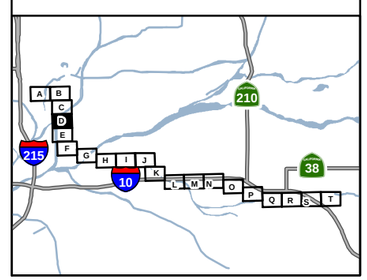
CDFW

USACE Waters of the U.S

USACE Wetlands

Non Jurisdictional Ditch

Soil Pit



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Wetland and Waters of the U.S

Figure 5 D

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RPRP Study Area

Railroad ROW

Jurisdiction

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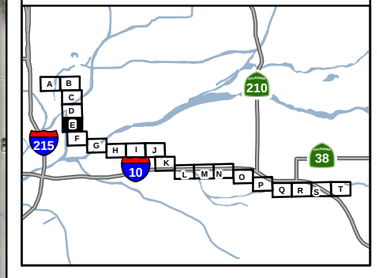
USACE Waters of the U.S

USACE Wetlands

Non Jurisdictional Ditch

Soil Pit



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Wetland and Waters of the U.S

Figure 5 E

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RPRP Study Area

Railroad ROW

Jurisdiction

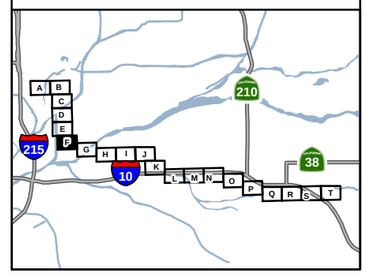
CDFW

USACE Waters of the U.S

USACE Wetlands

Non Jurisdictional Ditch

Soil Pit



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Wetland and Waters of the U.S

Figure 5 F

FTA/SANBAG | Redlands Passenger Rail Project | JDR

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RPRP Study Area

Railroad ROW

Jurisdiction

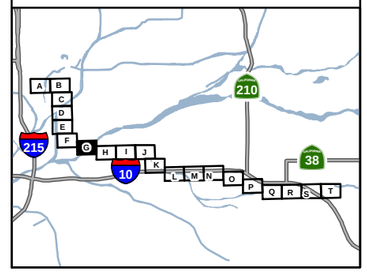
CDFW

USACE Waters of the U.S

USACE Wetlands

Non Jurisdictional Ditch

Soil Pit



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Wetland and Waters of the U.S

Figure 5 G

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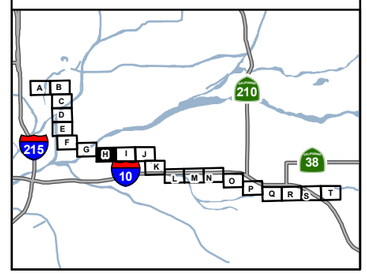
RPRP Study Area

Railroad ROW

Jurisdiction

- CDFW
- USACE Waters of the U.S
- USACE Wetlands
- Non Jurisdictional Ditch
- Soil Pit



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Wetland and Waters of the U.S

Figure 5 H

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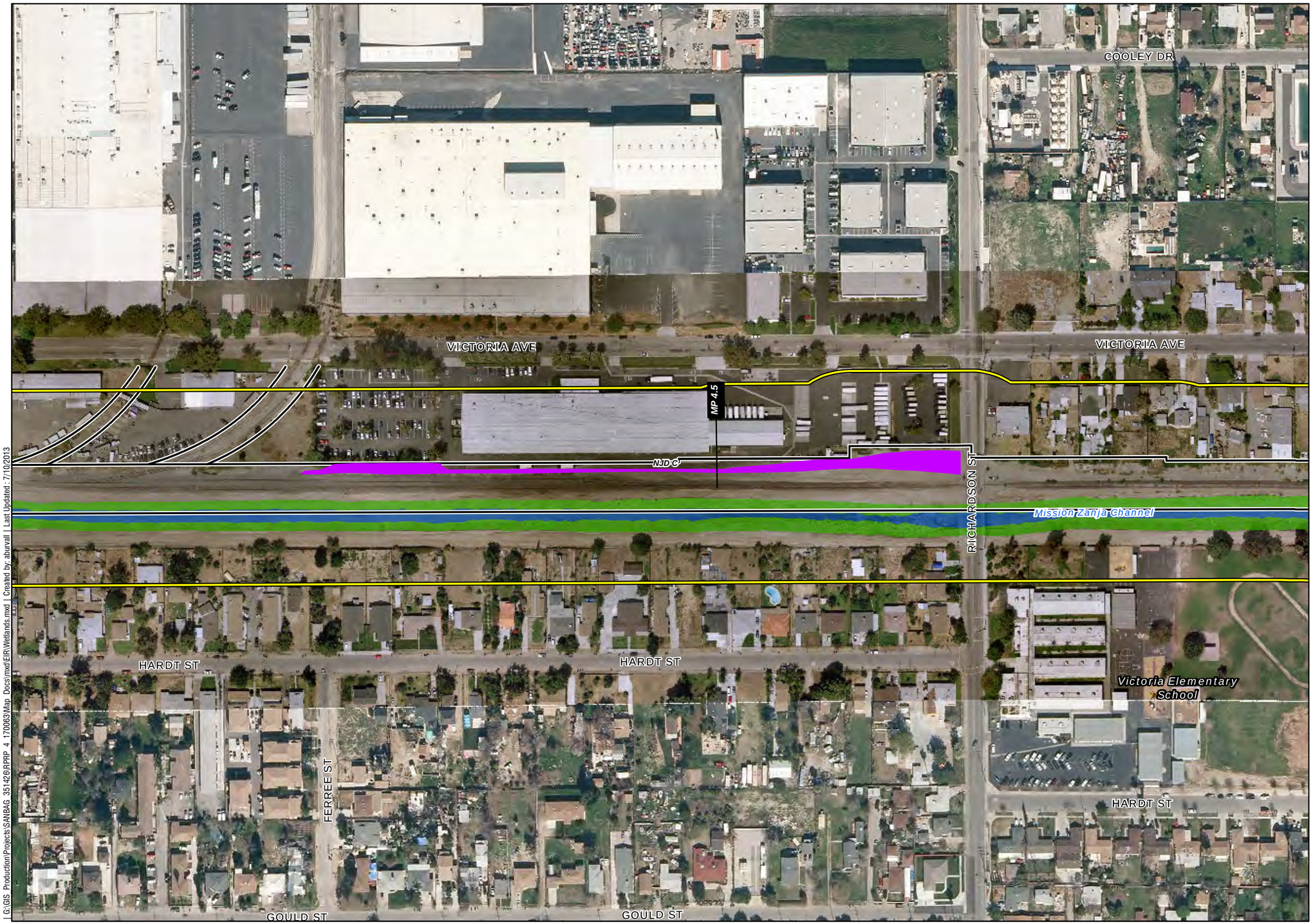


RPRP Study Area

Railroad ROW

Jurisdiction

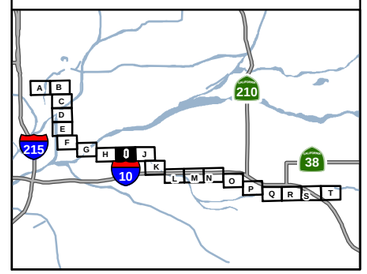
CDFW

USACE Waters of the U.S

USACE Wetlands

Non Jurisdictional Ditch

Soil Pit



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Wetland and Waters of the U.S

Figure 5 I

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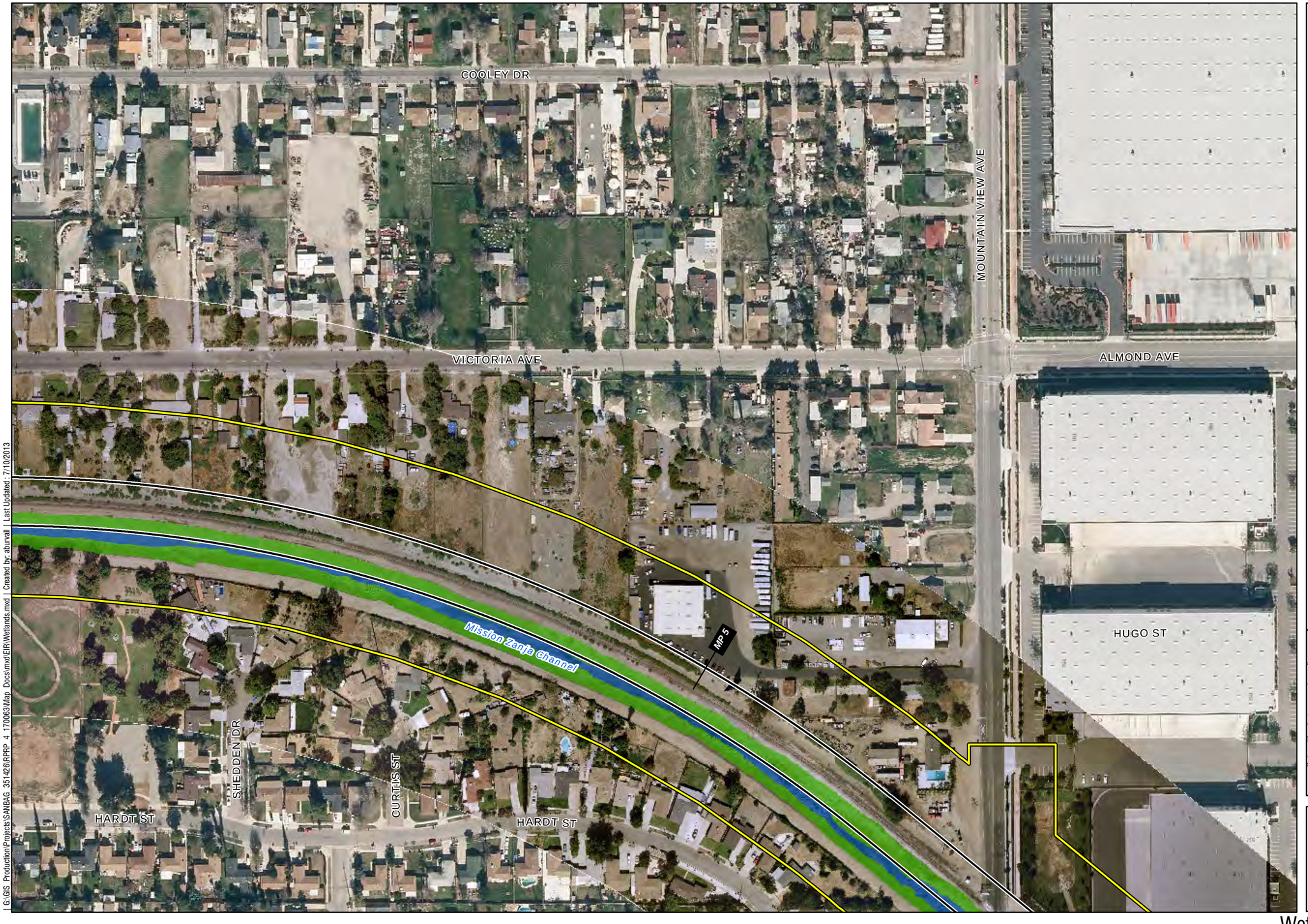


RPRP Study Area

Railroad ROW

Jurisdiction

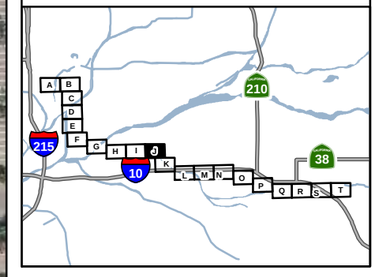
CDFW

USACE Waters of the U.S

USACE Wetlands

Non Jurisdictional Ditch

Soil Pit



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Wetland and Waters of the U.S

Figure 5 J

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RPRP Study Area

Railroad ROW

Jurisdiction

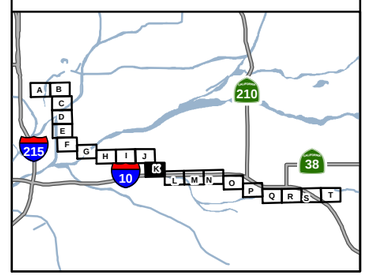
CDFW

USACE Waters of the U.S

USACE Wetlands

Non Jurisdictional Ditch

Soil Pit



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Wetland and Waters of the U.S

Figure 5 K

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RPRP Study Area

Railroad ROW

Jurisdiction

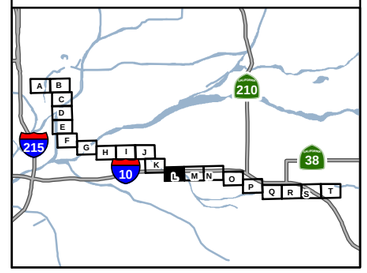
CDFW

USACE Waters of the U.S

USACE Wetlands

Non Jurisdictional Ditch

Soil Pit



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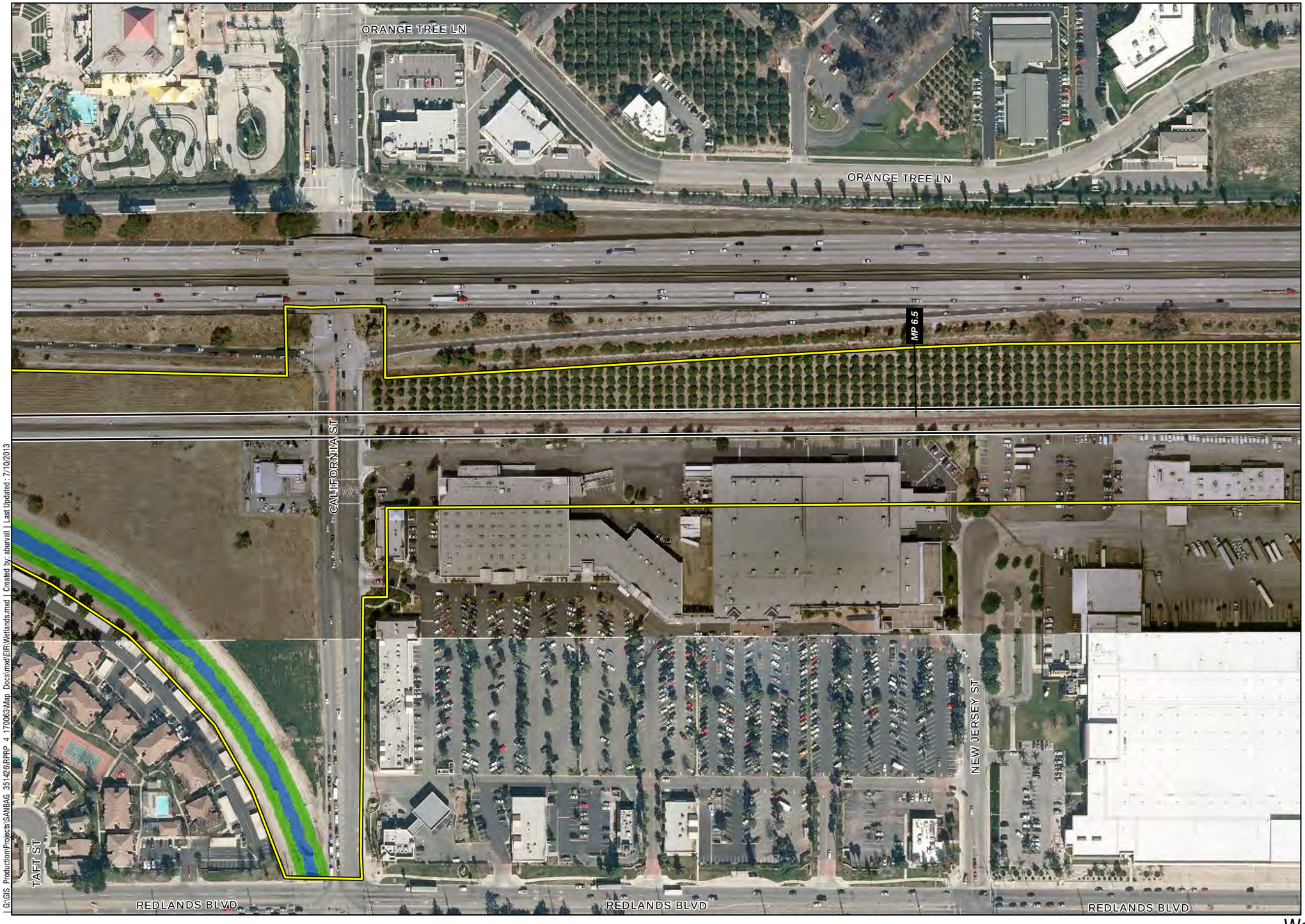
Wetland and Waters of the U.S

Figure 5 L

FTA/SANBAG | Redlands Passenger Rail Project | JDR



RPRP Study Area

Railroad ROW

Jurisdiction

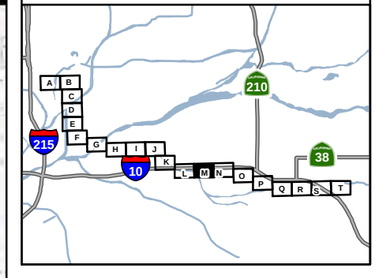
CDFW

USACE Waters of the U.S

USACE Wetlands

Non Jurisdictional Ditch

Soil Pit



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RPRP Study Area

Railroad ROW

Jurisdiction

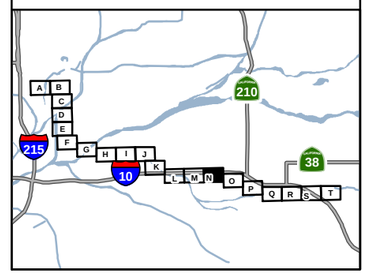
CDFW

USACE Waters of the U.S

USACE Wetlands

Non Jurisdictional Ditch

Soil Pit



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Wetland and Waters of the U.S

Figure 5 N

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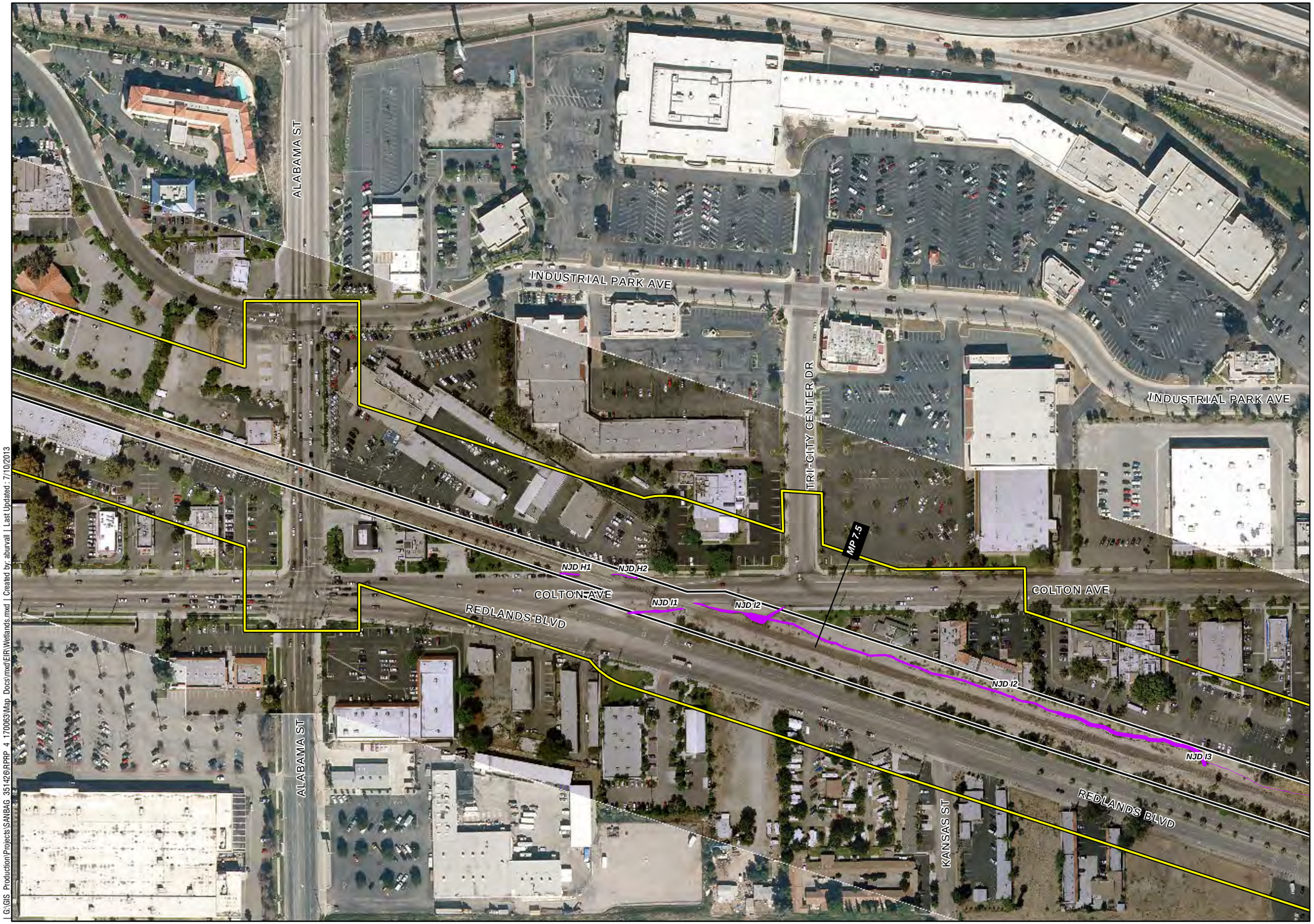


RPRP Study Area

Railroad ROW

Jurisdiction

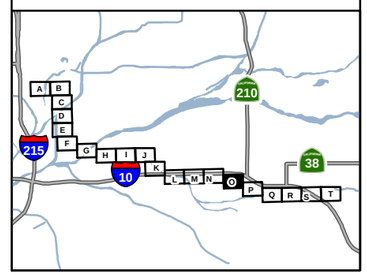
CDFW

USACE Waters of the U.S

USACE Wetlands

Non Jurisdictional Ditch

Soil Pit



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Wetland and Waters of the U.S

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RPRP Study Area

Railroad ROW

Jurisdiction

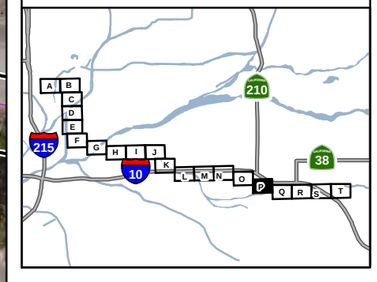
CDFW

USACE Waters of the U.S

USACE Wetlands

Non Jurisdictional Ditch

Soil Pit



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Wetland and Waters of the U.S

Figure 5 P

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RPRP Study Area

Railroad ROW

Jurisdiction

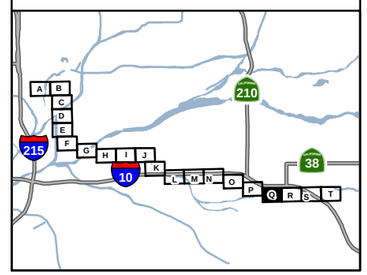
CDFW

USACE Waters of the U.S

USACE Wetlands

Non Jurisdictional Ditch

Soil Pit



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Wetland and Waters of the U.S

Figure 5 Q

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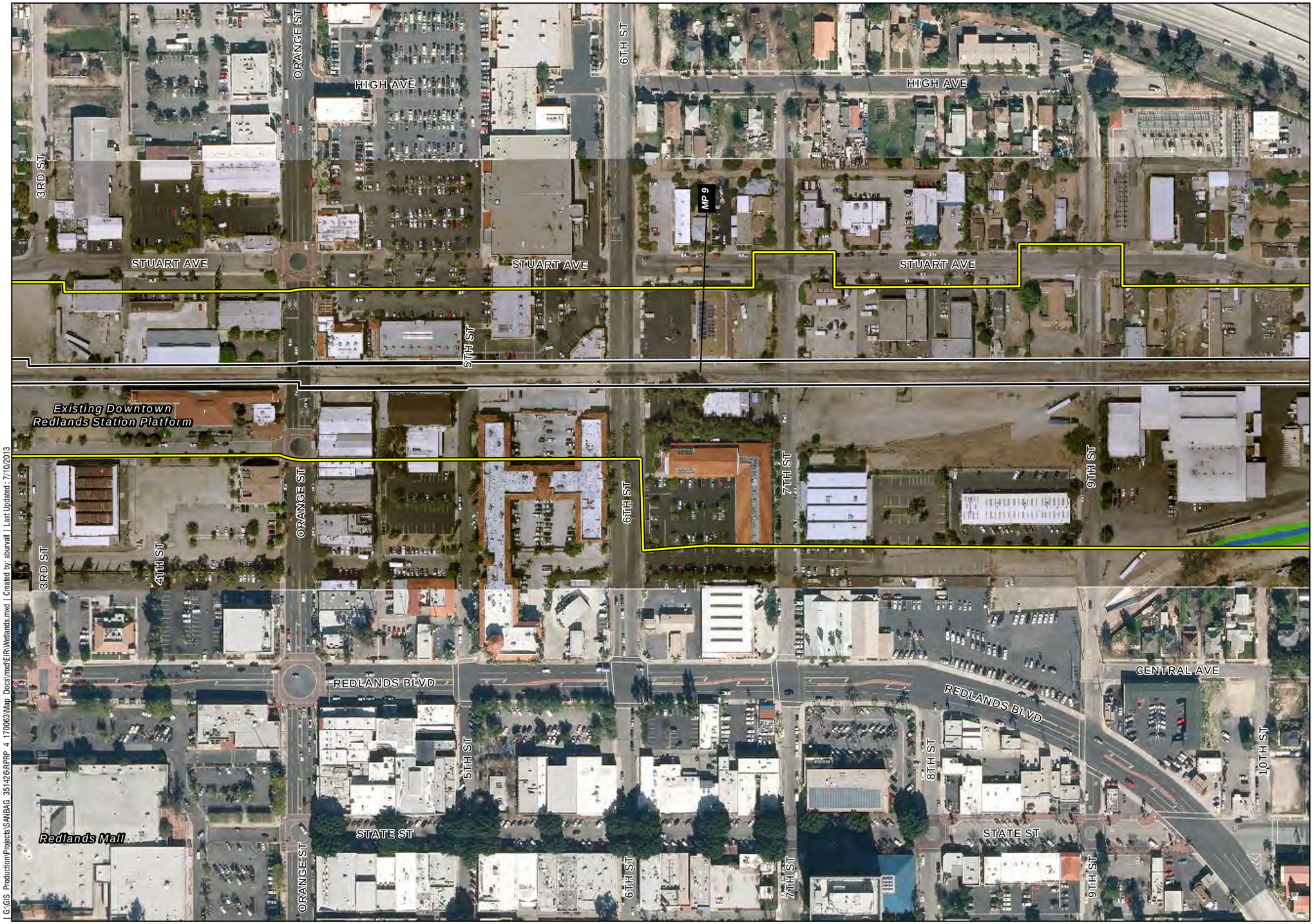


RPRP Study Area

Railroad ROW

Jurisdiction

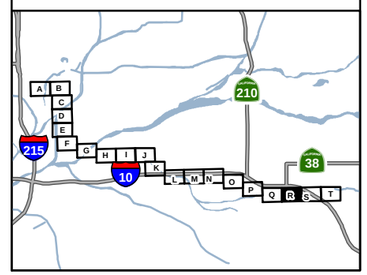
CDFW

USACE Waters of the U.S

USACE Wetlands

Non Jurisdictional Ditch

Soil Pit



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Wetland and Waters of the U.S

Figure 5 R

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RPRP Study Area

Railroad ROW

Jurisdiction

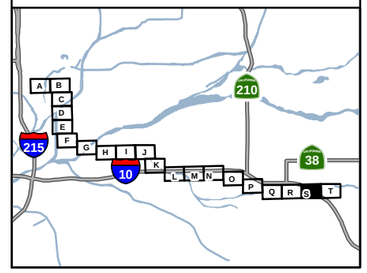
CDFW

USACE Waters of the U.S

USACE Wetlands

Non Jurisdictional Ditch

Soil Pit



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Wetland and Waters of the U.S

Figure 5 S

FTA/SANBAG | Redlands Passenger Rail Project | JDR

RPRP Study Area

Railroad ROW

Jurisdiction

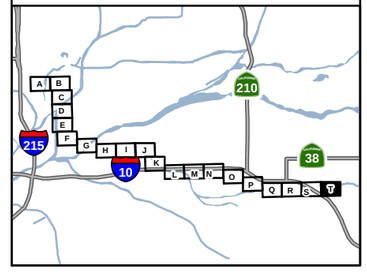
CDFW

USACE Waters of the U.S

USACE Wetlands

Non Jurisdictional Ditch

Soil Pit



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Wetland and Waters of the U.S

Figure 5 T

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APPENDIX B

Site Photographs
Jurisdictional Waters and Wetlands

Photograph 1. Disturbed habitat.

Photograph 2. North side of Twin Creek. Location of soil pit #3.

Photograph 3. Twin Creek. Southwesterly view. Soil pit #3 is on north side of creek and soil pit #4 is on the south side.

Photograph 4. Eucalyptus woodland habitat.

Photograph 5. Warm Creek. Northerly view.

Photograph 6. Where the Zanja Channel meets the Santa Ana River.

Photograph 7. South side overflow of Santa Ana River. Westerly view.

Photograph 8. Overview of overflow from Santa Ana River.

Photograph 9. Urban/Developed habitat.

Photograph 10. Stormwater from adjacent urban areas channels into the railroad ROW and is transported through a series of culverts into larger drainages.

Photograph 11. Santa Ana River. Westerly view.

Photograph 12. Zanja Channel

Photograph 13. Mill Creek Zanja. Westerly view.

Photograph 14. Mill Creek Zanja. Northwesterly view.

Photograph 15. Soil pit #1.

Photograph 16. Overview of soil pit #1 location.

Photograph 17. Overview of soil pit #2 location.

Photograph 18. Manufactured earthen berm separating the storm water runoff (soil pits #1 and #2) from Zanja Channel .

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APPENDIX C

Wetland Delineation Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: RPRP City/County: San Bernardino Sampling Date: 2/23/12
Applicant/Owner: BNSF State: CA Sampling Point: Area A (93)
Investigator(s): Allegra Simmons / Sean Harris Section, Township/Range: California Land Grant
Landform (hillside, terrace, fan, etc.): stream bed Local relief (concave, convex, none): none Slope (%): —
Subregion (LRR): C Lat: 34.090421 Long: -117.283442 Datum: WGS 84
Soil Map Unit Name: NWI classification: Riverine
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation X, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area Within a Wetland?** Yes X No ____
Hydric Soil Present:	Yes X No ____	
Wetland Hydrology Present:	Yes X No ____	

Remarks: Significant amount of trash and debris in Area A.
Location: Twin Creek

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. Salix lasiolepis	15	N	FACW
2. Baccharis pilularis	25	Y	FAC
3.			
4.			
5.			
Total Cover:	40		
Herb Stratum			
1. Typha sp	25	Y	OBL
2. UNKN grass	10	N	—
3. Veronica anagallis-aquatica	10	N	OBL
4.			
5.			
6.			
7.			
8.			
9.			
Total Cover:	45		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
____ Prevalence Index is ≤3.0[1]
____ Morphological Adaptations[1] (Provide supporting date in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: NO BARE ground, all unvegetated areas inundated

SOIL

Sampling Point: Area A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ Red Parent Material (TF2)
- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- X Inundation on Aerial Imagery (B7)
- X Water-stained Leaves (B8)
- ___ Biotic Crust (B10)
- ___ Aquatic Invertebrates (B11)
- ___ Crayfish Burrows (B12)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C2)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soil (C8)
- X Muck Surface (C7)
- X Saturation on Aerial Imagery (C8)
- ___ Shallow Aquitard (D4)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B9)
- ___ Dry Season Water Table (C3)
- ___ Salt Deposits (C5)
- ___ Mud Casts (C9)
- ___ FAC-Neutral Test (D7)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): _____

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: RPRP City/County: San Bern Sampling Date: 2/22/12
Applicant/Owner: BNSF State: CA Sampling Point: Area B (SP4)
Investigator(s): Allegra Simmons, Sean Harris Section, Township/Range: California Land Grant
Landform (hillside, terrace, fan, etc.): Streambed Local relief (concave, convex, none): NONE Slope (%): 0
Subregion (LRR): C Lat: 34.090181 Long: -117.283402 Datum: WGS 84
Soil Map Unit Name: NWI classification:
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? ND Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? ND (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____ Hydric Soil Present: Yes X No ____ Wetland Hydrology Present: Yes X No ____	**Is the Sampled Area Within a Wetland?** Yes X No ____

Remarks:
Twin Creek

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Use scientific names.)			
1. Salix sp	70	Y	FACW
2. Pop fremontii (p. deltoides)	5	N	FAC
3.			
4.			
Total Cover:	75		
Sapling/Shrub Stratum			
1. BAC SAL	20	Y	FAC
2.			
3.			
4.			
5.			
Total Cover:	20		
Herb Stratum			
1. Avena sp	10	Y	NL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
Total Cover:	10		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
____ Prevalence Index is ≤3.0[1]
____ Morphological Adaptations[1] (Provide supporting date in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: Area B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ Red Parent Material (TF2)
- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No ____

Remarks: Agitation of soil released hydrogen sulfide odor.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- X Inundation on Aerial Imagery (B7)
- X Water-stained Leaves (B8)
- ___ Biotic Crust (B10)
- ___ Aquatic Invertebrates (B11)
- ___ Crayfish Burrows (B12)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C2)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soil (C8)
- X Muck Surface (C7)
- ___ Saturation on Aerial Imagery (C8)
- ___ Shallow Aquitard (D4)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (**B1**) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B9)
- ___ Dry Season Water Table (C3)
- ___ Salt Deposits (C5)
- ___ Mud Casts (C9)
- ___ FAC-Neutral Test (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): _____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No standing water but saturated soils

Photos 46-53

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: RPPP City/County: San Bernardino Sampling Date: 2/22/12
Applicant/Owner: BRRP State: Sampling Point: SP 2
Investigator(s): Sam Harris & Allegra Simons Section, Township/Range: California Land Grant
Landform (hillside, terrace, fan, etc.): depression @ culvert outlet Local relief (concave, convex, none): Concave Slope (%):
Subregion (LRR): C Lat: 34.073618 Long: -117.264699 Datum: WGS 84
Soil Map Unit Name: NWI classification:
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation X, Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation , Soil , or Hydrology naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area Within a Wetland?** Yes X No
Hydric Soil Present:	Yes X No	
Wetland Hydrology Present:	Yes X No	

Remarks:

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Use scientific names.)			
1. Salix lasiolepis	40	Y	FACW
2. Populus fremontii (p. fallacea)	40	Y	FAC
3.			
4.			
Total Cover:	80		
Sapling/Shrub Stratum			
1. Baccharis salicifolia	20	Y	FAC
2.			
3.			
4.			
5.			
Total Cover:	20		
Herb Stratum			
1. Conyza canadensis	10	N	FAC
2. Sorghum halepense	20	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
Total Cover:	30		
Woody Vine Stratum			
1. Vitis girdiana	40	Y	FAC
2.			
Total Cover:	40		

% Bare Ground in Herb Stratum 2 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 80 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
Prevalence Index is ≤3.0[1]
Morphological Adaptations[1] (Provide supporting date in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks: Old fence-line is creating a berm that is giving rise to wild grape

SOIL

Sampling Point: SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 3/2	75	7.5YR 5/6	25	C	M	LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ✓ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ Red Parent Material (TF2)
- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation on Aerial Imagery (B7)
- ✓ Water-stained Leaves (B8)
- ✓ Biotic Crust (B10)
- ___ Aquatic Invertebrates (B11)
- ___ Crayfish Burrows (B12)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C2)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soil (C8)
- ___ Muck Surface (C7)
- ___ Saturation on Aerial Imagery (C8)
- ___ Shallow Aquitard (D4)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B9)
- ___ Dry Season Water Table (C3)
- ___ Salt Deposits (C5)
- ___ Mud Casts (C9)
- ___ FAC-Neutral Test (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Western edge of area has been disturbed. Depression is fed by culvert at E. end + runoff from R.R.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: PPRP City/County: San Bernardino Sampling Date: SP 2

Applicant/Owner: BNSF State: CA Sampling Point: _____

Investigator(s): AS, SH Section, Township/Range: California Land Grant

Landform (hillside, terrace, fan, etc.): Depressional area Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): C Lat: 34.073916 Long: -117.264347 Datum: WGS84

Soil Map Unit Name: _____ NWI classification: _____

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No X	**Is the Sampled Area Within a Wetland?** Yes _____ No X
Hydric Soil Present:	Yes _____ No X	
Wetland Hydrology Present:	Yes X No _____	

Remarks: Pit taken North of SP 2 in depressional area. Water enters site from adjacent development. Flows have been blocked from connecting with Mission channel by maintained berm.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. TAMARISK FAM	50	Y	FAC
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Johnson grass	15	Y	FACU
2. Sorghum halepense			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
Total Cover:	15		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	50	x 3 =	150
FACU species	15	x 4 =	60
UPL species		x 5 =	
Column Totals:	65 (A)		210 (B)

Prevalence Index = B/A = 3.23

Hydrophytic Vegetation Indicators:

_____ Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting date in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	2.5Y 4/2	100	—	—			Silt clay loam	
2-15	5Y 4/3	100	—	—			silt clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ Red Parent Material (TF2)
- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- X Surface Soil Cracks (B6)
- X Inundation on Aerial Imagery (B7)
- ___ Water-stained Leaves (B8)
- ___ Biotic Crust (B10)
- ___ Aquatic Invertebrates (B11)
- ___ Crayfish Burrows (B12)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C2)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soil (C8)
- ___ Muck Surface (C7)
- ___ Saturation on Aerial Imagery (C8)
- ___ Shallow Aquitard (D4)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B9)
- ___ Dry Season Water Table (C3)
- ___ Salt Deposits (C5)
- ___ Mud Casts (C9)
- ___ FAC-Neutral Test (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

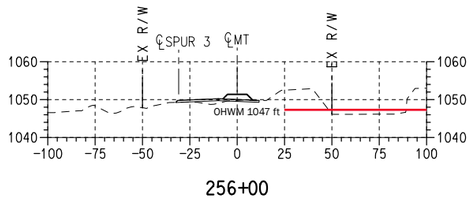
Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Out flow blocked by maintained Berm - would otherwise flow to Mission channel. flows coming from offshoot of SANTA ANA River TO North

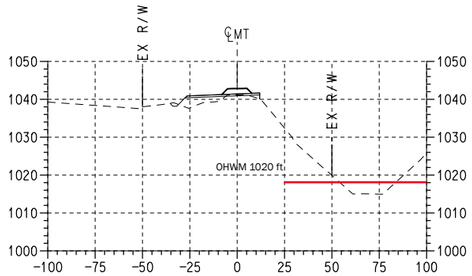
APPENDIX D

Topographic Cross Sections & OHWM



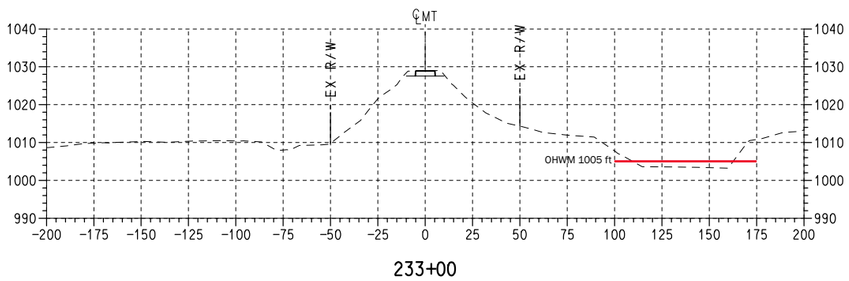
256+00

Mission Zanja Flood Control Channel - Mile Post 3.95



247+00

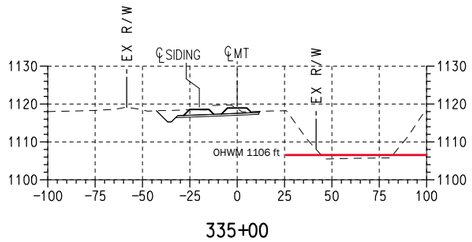
Mission Zanja Flood Control Channel - Mile Post 3.75



233+00

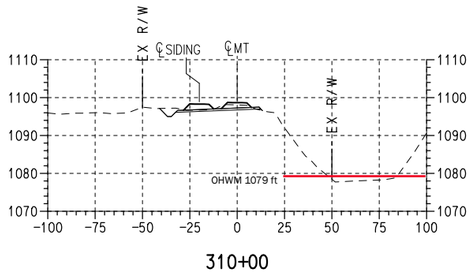
Mission Zanja Flood Control Channel (Mouth) - Mile Post 3.5

Exhibit D1. Channel Cross-Sections and OHWM



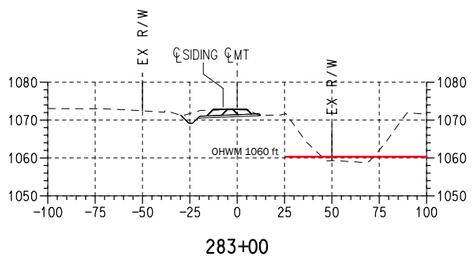
335+00

Mission Zanja Flood Control Channel - Mile Post 5.5



310+00

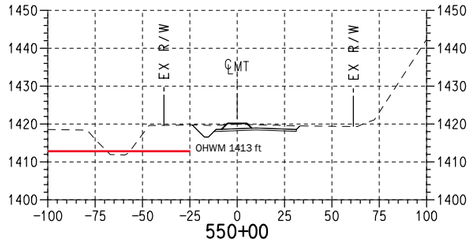
Mission Zanja Flood Control Channel - Mile Post 5



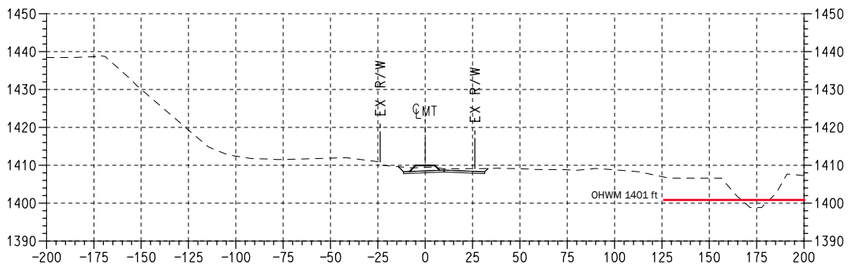
283+00

Mission Zanja Flood Control Channel - Mile Post 4.5

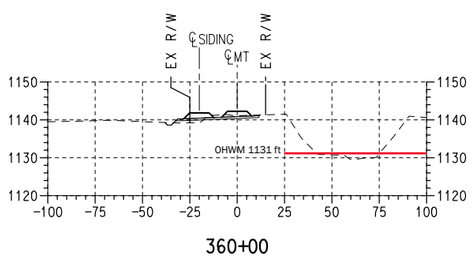
Exhibit D2. Channel Cross-Sections and OHWM



Mission Creek Zanja - Mile Post 9.5

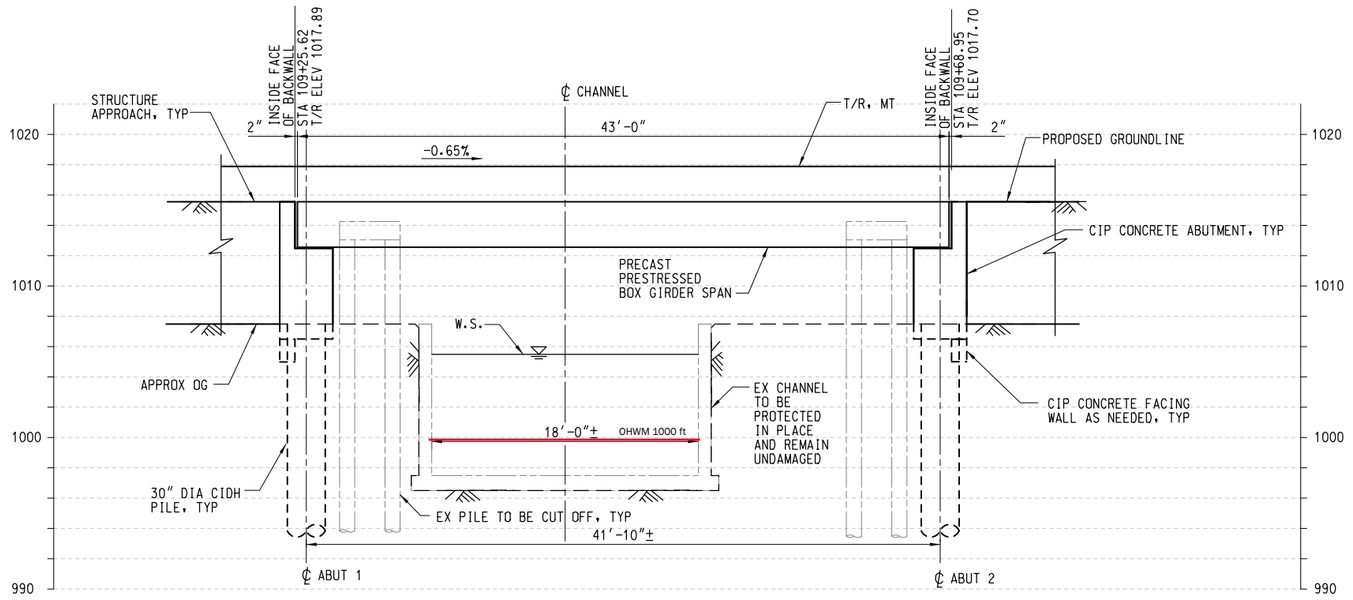


Mill Creek Zanja - Mile Post 9.3 (approx.)



Mission Zanja Flood Control Channel - Mile Post 5.9 (approx.)

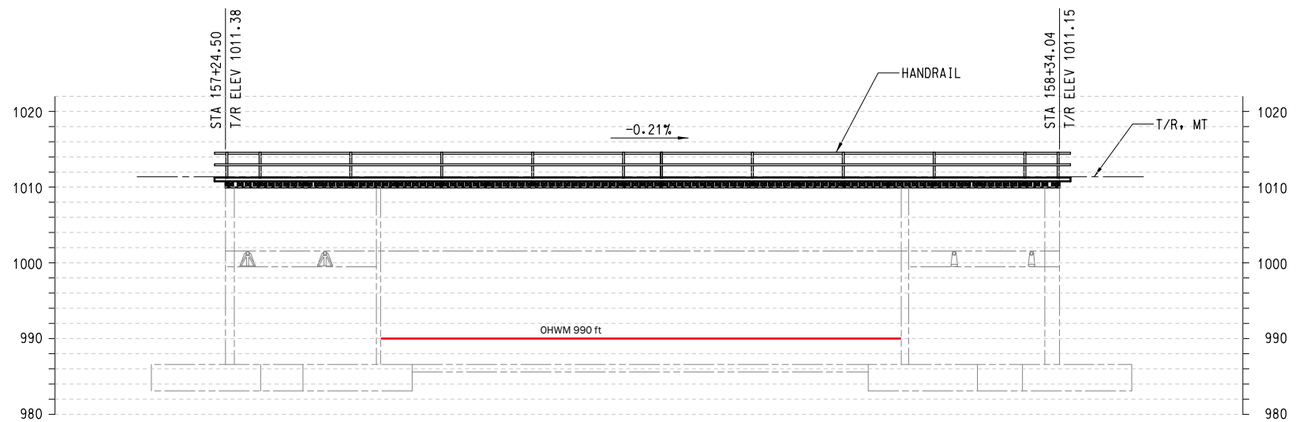
Exhibit D3. Channel Cross-Sections and OHWM



BRIDGE 1.1 - ELEVATION

SCALE: 1"=5'-0"

Warm Creek (Historic)



BRIDGE 2.2 - ELEVATION

SCALE: 1"=10'-0"

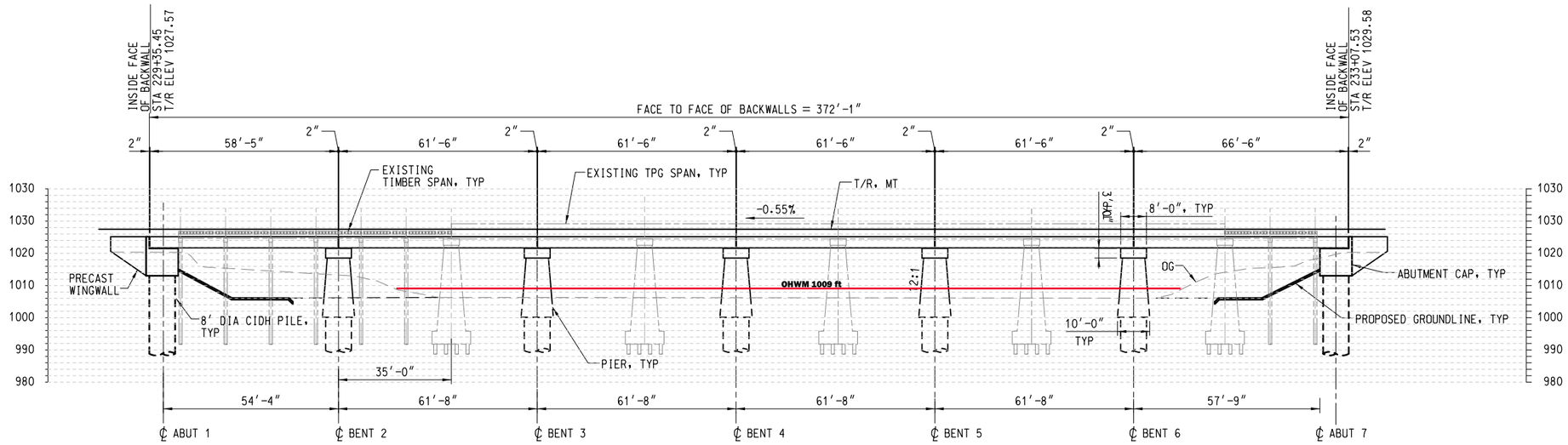
Twin Creek

LEGEND

EXISTING STRUCTURE

NEW STRUCTURE

Exhibit D4. Channel Cross-Sections and OHWM



BRIDGE 3.4 ELEVATION

SCALE: 1"=20'-0"

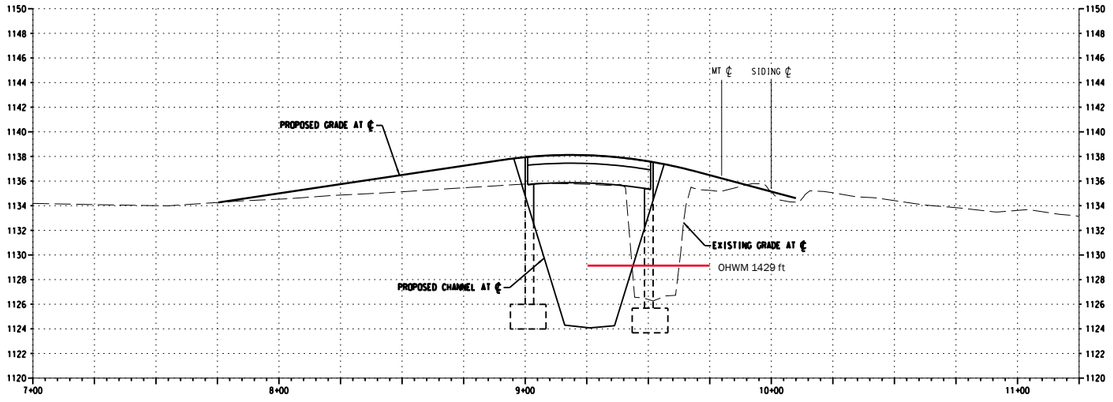
Santa Ana River

LEGEND

EXISTING STRUCTURE

NEW STRUCTURE

Exhibit D5. Channel Cross-Sections and OHWM

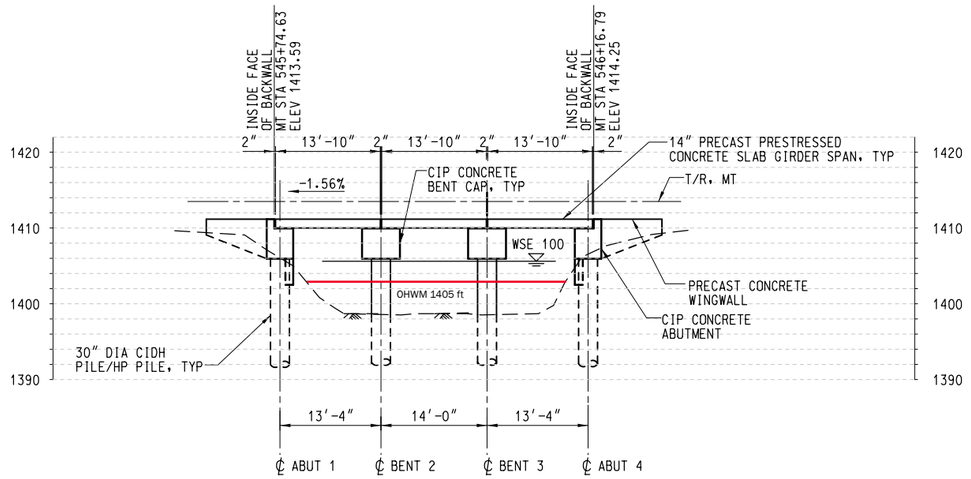


Bridge 5.78 - Bryn Mawr Avenue
Mission Zanja Channel

LEGEND

EXISTING STRUCTURE

NEW STRUCTURE



BRIDGE 9.4 ELEVATION

SCALE: 1"=10'-0"

(NORMAL TO ℄ CHANNEL)

Mill Creek Zanja

APPENDIX E

USACE Aquatic Resources Spreadsheet

Waters_Name	Cowadin_Code	HGM_Code	Measurement_Type	Amount	Units	Waters_Types	Latitude	Longitude	Local_Waterway
NJD A1	U	slope	area	0.048392	ACRE	UPLAND	34.099703	-117.295621	unnamed
NJD A2	U	slope	area	0.011677	ACRE	UPLAND	34.099806	-117.292691	unnamed
NJD A3	U	slope	area	0.013096	ACRE	UPLAND	34.099848	-117.290939	unnamed
NJD B	U	slope	area	0.246098	ACRE	UPLAND	34.073846	-117.266153	unnamed
NJD C	U	slope	area	0.528106	ACRE	UPLAND	34.073632	-117.197716	unnamed
NJD D	U	slope	area	0.007323	ACRE	UPLAND	34.07023	-117.242046	unnamed
NJD E	U	slope	area	0.05148	ACRE	UPLAND	34.066212	-117.23545	unnamed
NJD F	U	slope	area	0.013934	ACRE	UPLAND	34.066208	-117.217928	unnamed
NJD G1	U	slope	area	0.11483843	ACRE	UPLAND	34.065019	-117.213966	unnamed
NJD G2	U	slope	area	0.007579	ACRE	UPLAND	34.064637	-117.212573	unnamed
NJD H1	U	slope	area	0.003383	ACRE	UPLAND	34.062977	-117.206985	unnamed
NJD H2	U	slope	area	0.003249	ACRE	UPLAND	34.062963	-117.206607	unnamed
NJD I1	U	slope	area	0.013048	ACRE	UPLAND	34.062764	-117.206414	unnamed
NJD I2	U	slope	area	0.164952	ACRE	UPLAND	34.062744	-117.203894	unnamed
NJD I3	U	slope	area	0.018452	ACRE	UPLAND	34.061539	-117.20145	unnamed
NJD I4	U	slope	area	0.053115	ACRE	UPLAND	34.060911	-117.199357	unnamed
NJD J1	U	slope	area	0.050988	ACRE	UPLAND	34.060267	-117.19636	unnamed
NJD J2	U	slope	area	0.02093	ACRE	UPLAND	34.059329	-117.192981	unnamed
Mill Creek Zanja	R4SB3	riverine	area	0.54576129	ACRE	RPW	34.058978	-117.172128	Mill Creek Zanja
Mission Zanja Flood Control Channel	R4SB3	riverine	area	8.64491012	ACRE	RPW	34.073778	-117.194519	Mission Zanja Flood Control Channel
Santa Ana River	R4SB4	riverine	area	5.135647	ACRE	RPW	34.075837	-117.270306	Santa Ana River
Twin Creek	R4SB (Concrete)	riverine	area	2.0674	ACRE	RPW	34.090557	-117.283157	Twin Creek
Warm Creek (Historic)	R4SB	riverine	area	0.349912	ACRE	RPW	34.099875	-117.2906	Warm Creek (Historic)
Twin Creek Wetland	R4SB7	riverine	area	0.046208	ACRE	RPWWD	34.0905	-117.283226	Twin Creek

APPENDIX F

Non-Jurisdictional Attribute Data

Non-Jurisdictional Drainage Information											
							Surface Runoff				
Non-Jurisdictional Drainages	Map Page	Surface / Subsurface Connectivity (Y/N)	Typical Flow Regime	Channel Type	Water Type (Uplands or Natural Drainage)	Percent Developed	Sheet-Flow Inputs	Dry Weather Urban Runoff Inputs	Upstream Natural Water Runoff Inputs	Drainage Area (Acres)	Discahrge Point
NJD A1	5A	No	Seasonal	Earthen Ditch - See Photo (F1)	Uplands - See Figure F1	< 15%	Yes	Yes	No	4.4	Storm Drain
NJD A2	5A	No	Seasonal	Earthen Ditch - See Photo (F2)	Uplands - See Figure F1	76%	Yes	Yes	No	32.9	Storm Drain
NJD A3	5A	No	Seasonal	Concrete Spillway- See Photo (F3)	Uplands - See Figure F1	76%	Yes	Yes	No	4.3	Spillway
NJD B	5G	No	Seasonal	Earthen Ditch - See Photo (F4)	Uplands - See Figure F2	76%	Yes	Yes	No	5.0	Enclosed Basin
IW1	5H	No	Perenial	Isolated Wetland - See Photo (F5)	Uplands - See Figure F2	76%	Yes	Yes	No	2.1	Enclosed Basin
NJD C	5I	No	Seasonal	Earthen Ditch - See Photo (F6)	Uplands - See Figure F2	85%	Yes	Yes	No	3.5	Storm Drain
NJD D	5K	No	Seasonal	Concrete Ditch - See Photo (F7)	Uplands - See Figure F3	76%	Yes	Yes	No	9.4	Storm Drain
NJD E	5L	No	Seasonal	Concrete Ditch - See Photo (F8)	Uplands - See Figure F3	76%	Yes	Yes	No	193.8	Storm Drain
NJD F	5N	No	Seasonal	Concrete Ditch - See Photo (F9)	Uplands - See Figure F3	76%	Yes	Yes	No	142.4	Storm Drain
NJD G1	5N	No	Seasonal	Earthen Ditch - See Photo (F10)	Uplands - See Figure F3	76%	Yes	Yes	No	10.0	Storm Drain
NJD G2	5N	No	Seasonal	Earthen Ditch - See Photo (F11)	Uplands - See Figure F3	76%	Yes	Yes	No	9.2	Storm Drain
NJD H1	5O	No	Seasonal	Earthen Ditch - See Photo (F12)	Uplands - See Figure F3	76%	Yes	Yes	No	0.5	Storm Drain
NJD H2	5O	No	Seasonal	Earthen Ditch - See Photo (F13)	Uplands - See Figure F3	76%	Yes	Yes	No	23.6	Storm Drain
NJD I1	5O	No	Seasonal	Earthen Ditch - See Photo (F14)	Uplands - See Figure F3	65%	Yes	Yes	No	32.2	Storm Drain
NJD I2	5O	No	Seasonal	Concrete Ditch - See Photo (F15)	Uplands - See Figure F3	53%	Yes	Yes	No	29.4	Storm Drain
NJD I3	5P	No	Seasonal	Earthen Ditch - See Photo (F16)	Uplands - See Figure F3	90%	Yes	Yes	No	28	Storm Drain
NJD I4	5P	No	Seasonal	Earthen Ditch - See Photo (F17)	Uplands - See Figure F3	15%	Yes	Yes	No	0.4	Storm Drain
NJD J1	5P	No	Seasonal	Earthen Ditch - See Photo (F18)	Uplands - See Figure F3	23%	Yes	Yes	No	41.6	Storm Drain
NJD J2	5P/Q	No	Seasonal	Earthen Ditch - See Photo (F19)	Uplands - See Figure F3	41%	Yes	Yes	Yes	6.2	Storm Drain


NJD A1


NJD A2


DANGER
NJD A3


NJD B


IW1


Worldwide Services
NJD C


NJD D


NJD E


NJD F


NJD G1


NJD G2


NJD H1


NJD H2


NJD I1


NJD I2


DYNASTY
SUITES
NJD I3


NJD I4


NJD J1


NJD J2

SAN BERNARDINO
Waterman Gardens
Mt Vernon School
Ramona Sch
Alessandro Jr High Sch
Sturges Jr High School
Home of Peace Cemetery
Pioneer Memorial Cemetery
Jefferson Sch
Harding Sch
Edison High Sch
Pioneer Pk
INLAND LAKE PARK
Monterey School
Cottage Gardens
Gateway Park
A T & S F SHOPS
Hosp
Courthouse
Park
Lytle
Gaging Sta
Lytle Cr School
LYTLE CREEK PARK
Metcalf School
Richardson Jr High School
Rana
Drive-in Theater
San Bernardino Valley College
Urbita School
Burbank School
NATIONAL ORANGE SHOW GROUNDS
NORTON AIR FORCE BASE
Lytle Creek
East Twin Creek
Warm
City
Creek
RIALTO
MILL ST
5TH
6TH
7TH
9TH
11TH
CENTRAL AVE
CARDIFF AVE
TIPPECANOE AVE
PACIFIC AVE
SIERRA WAY
WATERMAN AVE
ELECTRIC
TOPEKA
ATCHISON
WHEAD
MT VERNON AVE
MUSCOTT AVE
4 LANE
3D
BM 1100
BM 1049
BM 1046
BM 1079
BM 1086
BM 1078
BM 1073
BM 1031
BM 1053
BM 1083
1140
1080
1068
1041
1056
1066
1064
1027
997
1040
1058
1031
1014
1000
1057
NJD A2
NJD A3
NJD A1

NJD B

NJD C

IW1

NJD D
NJD E
NJD F
NJD G2
NJD H2
NJD I2
NJD I4
NJD J2
NJD G1
NJD H1
NJD I3
NJD I1
NJD J1
Santa Ana R
Well
Oil
STREET
AVE
Marigold
1219
1200
RDY
PIONEER
16
15
ST
STREET
ANA
14
13
REDLANDS
1158
SAN BERNARDINO
1227
PACIFIC
ELECTRIC
Crown Jewel
Reservoir
ALABAMA
Sunkist
BM 1399
AVE
1440
22
1409
23
1500
24
1320
Christian Sch
University of Redlands
Drive-in Theater
1114
COLTON
1161
Nevada
A T & S
4 LANE
GRANT
Mission Sch
1213
Lincoln Sch
BDY
REDLAND'S
COLTON
BM 1537
Warner
VIEW
CALIFORNIA
S P
City Hall
BM 1421
1487
CITRUS
HS
BM 1150
San Timoteo
MTN
San Gabriel Mission
Asist
1280
BROOKSIDE
AVE
PO
CENTER
CAJON
RESERVOIR
FIFTH
Pumps
GRANT
BDY
1200
Bryn Mawr
BM 1202
SOUTHERN
36
31
32
33
FERN
BM 1381
34
35
Smiley Sch
PALM
HIGHLAND
BEAUMONT
BM1248
Wash
Hosp
Redlands (Siding)
Gaging
Redlands Heights
Reservoir